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OBSERVATIONS

ON THE

NATURE, KINDS, CAUSES, AND PREVENTION,

OF

INSANITY.

2437

BY THOMAS ARNOLD, M.D.

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS, AND OF THE ROYAL MEDICAL SOCIETY, OF EDINBURGH.

IN TWO VOLUMES.

VOL. II.

CONTAINING

OBSERVATIONS ON THE CAUSES AND PREVENTION OF INSANITY.

SECOND EDITION,

CORRECTED AND IMPROVED.

Ταράσσει τοὺς ἀνθρώπους, οὐ τὰ πράγματα, ἀλλὰ τὰ περὶ τῶν πραγμάτων δόγματα. EPICTETI ENCHIRID. CAP. X.

Men are not disturbed by things themselves; but by the opinions which they form concerning them.

And moody madness laughing wild
Amid severest woe. GRAY.

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1806.

Non impune unquam venas inflantur Iaccho;
Non veneri crebro licet unquam impune litare:
Non duros poterunt ullos tolerare labores
Constanter; nec longa quidem jejunia ferre:
Lucubratio denique obest insigniter usque.

FLEMYNG NEUROPATH, LIB. I. P. 281, &c.

Nam neque sors hominum est adeo miseranda gravisque,
Hæc ut, si parent Naturæ legibus æquis,
Irruat, et cumulo sesè addat sponte malorum.
Culpa opus, ut morbi moles condatur acerba.
Quo magis hæc——
Pectoribus scribenda imis, signandaque firme;
Ut Morbi ærumnas vitare queamus amaras.

ID. IB. V. 302, &c.

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PREFACE

TO THE

FIRST EDITION OF THE SECOND VOLUME.

I NOW present to the world my Second Volume of Observations on Insanity; the publication of which has, by various weighty, and invincible, impediments, been much longer delayed, than I expected at the time when the First Volume issued from the press. What have been the causes of delay, concerns chiefly myself, and can but little interest the reader. Such as it is, the complete work is now presented to the public; and whatever may be the opinion of the execution, the attempt, I am persuaded, will be thought to merit approbation.

I am happy to learn, that the First Volume has been thought, by men of great respectability in the medical profession, to deserve attention. Of this I am certain, that the greatest part of it is the result of experience, and founded upon actual observation. Some few, I understand, have objected to it, that I have extended the boundaries of insanity too far; and have either not at all, or not sufficiently, distinguished it from mere vice, and folly; from the moral insanity of the Stoics. If I have really confounded them, it was not my intention. I thought I had abundantly guarded against the possibility of such a mistake. There are very few definitions in the whole book, which were not drawn up from examples of actual cases of insanity, which had fallen under my own inspection. And, indeed, after a careful review of all that I have said upon the subject, I cannot but persuade myself, that the persons who have made the objection, would not have made it,

had they attended sufficiently to the whole tenor of the work.

I should have been more flattered by the approbation of my venerable, and respected preceptor, the very ingenious Dr. CULLEN; had he not qualified it by a reflection, which, though of little force in reality, cannot fail to derive great weight from the influence of his authority. Without defending myself in what I think needs no defence, I shall only observe, that the objection would be of equal validity against Dr. CULLEN's own elaborate system of nosology; and especially with the aid of those weapons with which we are occasionally furnished by his First Lines of the Practice of Physic: but that such a mode of attack would be unfair against either of us; and that it is equally unfair to object, either to descriptions drawn from nature, or to the discoveries of new appearances, which are both real acquisitions to science; witness the numerous descriptions of LINNÆUS, and his followers, and the wonderful discoveries of PRIESTLEY, and HERSCHEL; that we do not at present know how to apply them to use; since truth is always valuable, and the acquisition of new truth ever to be desired, and will rarely fail, at some time or other, to lead to important purposes, though we may be unable, at present, to form the most distant conjecture of what those purposes may be. The ardour for discovery would be almost entirely suppressed, and science would make but very slow advances, were nothing to meet with a favourable reception from the public, of which it was difficult, immediately, to perceive the application.

I flatter myself, however, that I have found much valuable practical advantage from the distinctions I have adopted. And I hope they will be allowed by all to be useful, as furnishing a nomenclature on the subject of insanity;

sanity; and enabling us to convey our ideas relative to this disorder, and to describe its appearances in particular cases, with much more conciseness, and precision, than we are able to do while no other distinctions were known or attended to, than those of mania, and melancholia.

The truth of these observations will, I presume, in part receive confirmation from the present volume: on the contents of which I have bestowed much pains; and, I hope, not altogether without success; though I must acknowledge that I stand greatly in need of the candour, and forbearance, of the philosophical reader, who, if he find something to commend, will, I fear, meet with more than I could wish, which may not receive his entire assent, and approbation. But the novelty, and difficulty, of my subject, will, I allow myself to believe, plead powerfully in my favour; and contribute to secure to me the desirable encouragement of the good opinion of the public.

Leicester, May 8, 1786.

CONTENTS OF VOL. II.

THE TANJORE MAHARAJA SERFOJI'S SARASWATI MAHAL

SECT. V.

PAGE

Of the Causes of Insanity 1
Remote Causes 4
A Table of the Remote Causes 6
General Observations relative to the Nervous System, and the Influence of the Mind and Body on each other 12
A. Bodily Causes 61
I. Internal Causes seated in the Brain, its Vessels, and Membrances 61
II. External Causes which operate mechanically upon the Brain 65
III. Causes affecting the Body in general, which produce Insanity, either by acting directly upon the Brain, or by introducing a gradual Change in the System which disposes to Insanity 70
IV. Causes seated in, or primarily affecting, some particular Parts, and giving rise to Insanity, either by acting speedily upon the Brain, as by Sympathy, or Translation; or by operating more slowly, and producing such a gradual Change in the Constitution as disposes to Insanity 107
B. Mental Causes 161
V. Intense Application of Mind 161
1. To Study 163
2. To Business, or Schemes, of any kind, that require great and unremitted Attention, or much Exertion of Genius 183
3. Any sort of Employment of the Mind which may keep it for a long time in an active and wakeful state 185
VI. Passions of various kinds, when sudden, violent, or habitual 187
Curiosity, Admiration, Wonder, Surprise, and Astonishment 194
Joy 199
Vanity 205
Malevolence 209

Desire

PAGE

Desire 212
 Hope 214
 Anger 216
 Hatred 219
 Love 220
 Ambition 225
 Avarice 226
Distress 229
 Envy 229
 Grief 233
 Despair 240
Fear 244
 Consternation 245
 Terror 245
 Shame 256
 Suspicion and Jealousy 257
 Anxiety 259
 Religious Fear 260
VII. Too great Activity of Imagination 263
VIII. Imbecillity of Mind 269
Proximate Causes 273
 Four Variations of them 279
 1. Phrenitic Insanity 290
 2. Incoherent —— 291
 3. Maniacal —— 294
 4. Sensitive —— 296
 5. Delusive —— 297
 6. Whimsical —— 300
 7. Fanciful —— 302
 8. Impulsive —— 304
 9. Scheming —— 307
 10. Vain, or Self-Important Insanity 308
 11. Hypochondriacal —— 309
 12. Pathetic —— 312
 13. Appetitive —— 315

SECT. VI.

Of the Prevention of Insanity 320

OBSERVA-

OBSERVATIONS

ON

INSANITY.

SECT. V.

OF THE CAUSES OF INSANITY.

IN treating of causes we tread upon slippery ground; and are liable to much obstruction, and perplexity, from the intricacy of the way, and the imperfect and doubtful lights on which we are obliged to rely; so that it is often exceedingly difficult to fix any firm and secure footing, and still more so to make any considerable advances towards truth and certainty. It will therefore be advisable to step with caution, if we wish to proceed with safety and success, and would avoid falling into error, or bewildering ourselves in doubt and obscurity.

Pathological writers have said a great deal on the causes of diseases, and have distinguished them by a variety of appellations according to their different natures, and the several relations which they bear to the disorders in whose production they are concerned.

On this subject, as on many others, the more early modern writers have been as uselessly, as they have been indefatigably, minute; and, improving upon the subtilty of their venerable masters, ARISTOTLE and GALEN, have enumerated causes with the most insignificant and disgusting refinement, and have multiplied distinctions without end.

Of these distinctions the more important have been retained by the later moderns; who usually distribute the causes of diseases under the three heads of *predisposing*, *occasional*, and *proximate*; and sometimes, which seems to be still better, only under two, which they term *remote*, and *proximate*: for though the former division seems to have a real foundation in nature, and, as explained in the writings of pathologists, appears beautiful in theory, and is not, perhaps, altogether void of practical utility; it is rather perplexing than easy in the application, and whatever may be its conveniences, when we have any particular case in contemplation, is seldom, if at all, applicable in treating of a disease in general: and is, perhaps, upon the whole, much less serviceable in facilitating the investigations of the actual practitioner, than in opening and enlarging the views of the student, by showing him the very lax, and unphilosophical sense, in which the term *cause* is, and necessarily must be used, on most occasions, in the writings of physicians.

Avoiding,

Avoiding, therefore, the former of these divisions of causes, as more apt to bewilder than to enlighten; and adhering to the plain and direct paths of experience and observation; I shall arrange such causes as are either known, or thought, to have some share in producing insanity, in the clearest and simplest manner, according to what appears to me to be the best, because the most distinct and practical division of them, into *remote* and *proximate*: the former containing all those causes which have commonly been marshalled under the distinct heads of *predisposing* and *occasional*; and which are either obviously striking, or more latent, and only to be deduced from reasoning on what we plainly see and know; either external or internal; recent or inveterate; accidental, or constitutional:—and the latter, which is wholly internal, being of the nature of a real physical cause, and so necessarily connected with the disease, that the one existing, continuing, changing, or ceasing, the other must of course exist, continue, change, or cease[a].

[a] "Missis aliis minoris momenti causarum differentiis, ex hucusque propositis constare potest, eam solam, quam sano sensu dixi proximam aut continentem, veræ causæ physicæ ingenium præ se ferre, quæ morbum ita efficiat, ut illa posita hic ponatur, durante duret, mutata mutetur, ablata tollatur."—GAUBII *Institut. Patholog. Medicinal.* § 61, p. 18.

REMOTE CAUSES.

Of *remote causes* we can speak with some degree of precision; as a considerable knowledge of them may be acquired by experience and observation; they being, for the most part, either the immediate objects of our senses, or directly, and clearly, deducible from known facts which are so.

We are by no means, however, free from the possibility of error even here: and we are not a little liable to deficiency. Some of our supposed causes, may have but a small share in producing the disease in question; some may have no other relation to it than that of originating from the same common cause; others may have no connexion with it at all, and only exist accidentally at the same time; and others which may have some real, and immediate, relation to it, may not have that of a cause, but of an effect. Of one or other of the three last-mentioned sorts, are, I believe, many of the appearances on dissection. It may be better, however, to admit an imaginary cause, than to reject a real one: since, after all our care and attention in collecting them, our catalogue of remote causes will inevitably have many deficiencies, which time and observation alone can supply; and the same time and observation, while they enlarge our acquaintance with real,

real, may enable us to reject with certainty such supposed causes, as we could not have discarded at an earlier period, on any better ground than that of mere suspicion. For these reasons I shall admit many of the appearances observed on dissection, and other circumstances noticed by practical writers, into the list of causes, in which I am not positive that they really merit a place.

The remote causes of insanity naturally divide themselves into two kinds, bodily and mental.

(A) The *bodily causes* are either (I.) such internal causes as are immediately seated in the brain, its vessels, and membranes: or (II.) such external causes as operate mechanically upon that organ: or (III.) such causes as, while they affect the system in general, at the same time produce insanity, either by acting directly, and immediately, upon the brain; or by effecting such a gradual change in the body, as disposes to insanity by diminishing the healthful tones, occasioning debility, inducing morbid irritability and sensibility, and exciting uneasy and painful sensations: or (IV.) such as, being seated in, or primarily affecting, some particular parts, give rise to insanity, either by speedily, and sometimes almost instantaneously, disordering the brain, as by sympathy, or translation; or by operating slowly, and introducing, like the third sort of causes, such a gradual change in the constitution as disposes to, and readily terminates in, insanity.

 (B) The

(B) The *mental causes* all consist either in the immediate and intense action of the mind itself (V. VI. VII.); or in such a constitution of mind (VIII.) either natural, or acquired, as disposes it to be easily put into a state of intense action. In the former case, it is earnestly fixed on one, or a few (V. VI.), or busily ranging through a variety (VII.) of objects: in the latter (VIII.) it is in a state of imbecility, which renders it incapable of withdrawing its attention from any train of thinking in which it has engaged (V.), disposes it to be readily carried away by the impulse of the passions (VI.), or deluded by the hasty and superficial combinations of imagination (VII.); and is subversive of self-command, rational conduct, and sound judgment.

The whole of the remote causes may be arranged in a table as follows:

A Table of the remote Causes of Insanity.

(A). BODILY CAUSES.

I. Internal causes seated in the brain, its vessels, and membranes.

1. Unusual firmness, hardness, dryness, and friability of the brain.
2. Hard substances, and other preternatural tumors and excrescences in various parts of the brain, such as

A tumor on the corpus callosum,
Hydatids and

Indurated

Indurated glands in the plexus choroides,

Enlargement, induration, and stony hardness of the pineal gland,

Unusual thickness, and firmness, and ossifications, of the coats of the carotid arteries.

3. Purulent, sanious, or mucous matter,—or

Extravasated, often black, and sometimes concreted blood, or

Water,—in the ventricles, in the substance of the brain, between the brain and its membranes, and between the membranes:—and

Polypous concretions, or

Coagulated blood,—in the sinuses.

4. Distention, and

Enlargement,—of the vessels of the brain and its membranes.

5. Inflammation of the brain, and its membranes.

6. Induration,

Incrassation, and partial

Ossification,—of one, or both membranes of the brain,

Adhesion of the dura mater to the skull, or of the membranes to each other.

7. Any other internal cause of compression, or irritation, of the brain.

II. External causes which operate mechanically, or at least immediately, upon the brain.

1. Exostoses of the inner table of the skull.

2. Depression, or fracture of the skull.

3. Concussion of the brain.

4. The immediate action of the burning rays of the sun upon the head, in hot climates; termed by modern medical writers *insolatio*, or *coup du soleil*.

5. Smallness of the head, early obliteration of the sutures, or, in short any external cause, compressing, confining, or irritating the brain[b].

6. A swelling in the neck.

III. Causes affecting the body in general, which produce insanity, either by acting directly upon the brain, or by introducing a gradual change in the system which disposes to insanity.

1. Phrenitis,
Other delirious fevers,
Small-pox.

2. Great heat of climate.

3. Immoderate exercise, and especially in a dry and hot air.

4. Profuse evacuations.

5. Excessive venery.

6. Defect of nourishment.

7. Fevers, of whatever kind, which have continued long, have frequently recurred, have terminated with an imperfect crisis, or have not been treated with proper dilution.

8. An inactive, and sedentary life.

IV. Causes seated in, or primarily affecting, some particular parts, and giving rise to insanity, either by acting speedily upon the brain, as by sympathy, or translation; or by operating more slowly, and producing such a gradual change in the constitution as disposes to insanity.

1. A diseased state of the abdominal viscera, and neighbouring parts; as of the
Stomach,
Pylorus,
Intestines,

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[b] Vide SAUVAGES, tom. iii. Part i. vol. iv. p. 376.

Pancreas,

Pancreas,
Mesentery and
Mesenteric glands,
Liver,
Spleen,
Hæmorrhoidal vessels,
Kidneys,
Glandulæ atrabiliariæ,
Omentum,
Peritoneum and parts adjoining.

2. Whatever tends to induce, or is the consequence of, an infirm state of the stomach, and intestines; as
Hard and indigestible aliment,
The immoderate use of warm diluting liquors,
Intemperance in diet of any kind,
Viscid phlegm,
Worms.

3. Active substances taken into the stomach which immediately affect the nerves and brain, by sympathy, and have a tendency to produce delirium; as
Wine,
Opium, and other
Narcotics, and
Poisons.

4. A disordered state of the
Womb,
Ovaria,
Spermetic vessels.

5. The retention, or suppression, of any customary evacuation, whether natural or preternatural; as
The lochia,
Milk,
Menses,
Piles,
Old ulcers, setons, issues, habitual sweats.

6. Meta-

6. Metastases, or translations, to the brain, as in the repelled
   Gout,
   Erysipelas,
   Herpes,
   Cutaneous eruptions.
7. Worms in the nostrils, or frontal sinuses.

(B.) MENTAL CAUSES.

V. Intense application of the mind to
1. Study;
2. Business, or schemes, of any kind, that require great and unremitted attention, or much exertion of genius;—or
3. Any sort of employment of the mind, which may keep it for a long time in an active and wakeful state.

VI. Passions of various kinds, when sudden, violent, or habitual; as
1. Surprise, or astonishment.
2. Joy.
3. Enthusiasm, or religious joy.
4. Pride and vanity.
5. Desire.
6. Anger.
7. Hatred, and aversion.
8. Love.
9. Ambition.
10. Avarice.
11. Distress.
12. Grief.
13. Despair.
14. Fear.
15. Suspicion.

THE ... OF MAHARAJA SERFOGI'S SARASWATI MAHAL

16. Jealousy.
17. Anxiety.
18. Religious fear.

VII. Too great activity of imagination.

VIII. Imbecility of mind.

How the bodily causes which operate immediately upon the brain are capable of producing insanity, we may form some notion from the obvious analogy between the delirium which constitutes this disorder, and that of a fever: but how insanity is excited by those bodily causes which do not act immediately upon the brain, is not, perhaps, at first sight, so evident. This, it is probable, will be better understood, after a general preliminary view of the mutual influence of the mind and body on each other in the production of sensation and motion; in the generation of the appetites; and in the excitement, and operation, of the passions: the previous consideration of which, will not only throw some light upon this matter; but prepare the way for a more minute and accurate explanation of the mental causes—intense thinking,—violence, or sensibility, of passion,—and imbecility of mind.

And though, that there is such a mutual sympathy between the body and mind, and that the operations of the one are greatly influenced by the affections of the other, is very generally acknowledged in the writings of physicians, and philosophers; and is, indeed, so evident, as scarcely to

to need a proof; it seems nevertheless proper, in this place, to illustrate this important truth with some degree of minuteness and precision, since very few have treated it with that exactness which its extensive application, and usefulness, in explaining the theory of the human frame, and faculties, appear to demand; and, however frequently it be implied in their reasonings, it is rarely sufficiently attended to, either by medical, or philosophical writers, in its various forms and consequences.

The philosophers of antiquity were so sensible how much the body was concerned in the operations of the mind, that not a few of them supposed these operations to be nothing more than the result of a certain appropriate structure, disposition, and harmony, of its parts; and that mind was merely a modification of matter. CICERO, in his Tusculan Disputations[c],—after enumerating a variety of opinions relative to the nature and seat, of the soul; as that it was the heart, the blood, the brain, the breath, fire; or that, whatever was its nature, its seat was in the

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[c] "Ut multi ante veteres, proxime autem ARISTOXENUS, musicus idemque philosophus, ipsius corporis intentionem quamdam, velut in cantu et fidibus, quæ *harmonia* dicitur; sic ex corporis totius natura et figura varios motus cieri, tanquam in cantu sonos. Hic ab artificio suo non recessit, et tamen dixit aliquid, quod ipsum quale esset, erat multo ante et dictum et explanatum a PLATONE."—*Lib.* i. *cap.* x.

heart,

heart, or in the brain;—adds, among others, several of which are of a similar tendency, the following—"As many of the ancients," says he, "formerly, and very lately ARISTOXENUS, a musician and philosopher, considered the soul as a kind of tone of body, which, like that of the voice in singing, or of the strings of a musical instrument, was termed *harmony*; so they supposed that various motions, like musical sounds, were excited in the body, in consequence of the peculiar nature and structure of the whole. In adopting this theory he might be influenced by its analogy with the art he professed: but, however this might be, he only asserted what had long before been mentioned, and explained, by PLATO."

But allowing, as seems most probable, that the soul is an immaterial substance, and as CICERO expresses it, being of a divine nature, and original[d], has a principle of motion within itself, which essentially distinguishes it from every material substance[e]; or according to ARISTOTLE, a fifth principle, which he terms *endelecheia*, totally different from the four known material elements, and possessing powers, and properties, of which they are found, by uniform experience, to be destitute, as the faculty of thought, of foresight, of receiving and communicating instruction, of

[d] Ib. lib. i. cap. xxvii.

[e] Somn. Scipion. cap. x.

invention

invention, memory, love, hatred, desire, fear, distress, joy, and the like;—it is not only obvious that in sensation, and voluntary motion, the soul and body mutually act upon, or influence, each other; that wine, opium, and several sorts of poison, much affect, and often greatly disorder the mind, by the mediation of the body; and that the mind, on the other hand, by means of the passions, is capable of wonderfully affecting, and disordering the body, and even of exciting, on some occasions, such violent commotions, as suddenly to dissolve their natural union[f];—but some have gone so far, and perhaps not wholly without reason, as to assert that the dispositions of the soul appear to be much influenced by, if they are not in a great measure dependent upon, the temperament, and constitution, of the body. Of this opinion were HIPPOCRATES, PLATO, ARISTOTLE, GALEN, and many others among the ancients; the latter of whom has left us an express dissertation upon the subject[g]: and among the moderns, to omit a long list of less eminent names, both of physicians and philosophers,

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[f] HOFFMANNI De Animo Sanitatis et Morborum Fabro. Oper. tom. v. p. 259, § 10, p. 260, § 15, 16.

All who have written upon the effects of the passions, and of the imagination, upon the body, abound with facts of this sort.

[g] De animi morum et corporei temperamenti mutua consequutione, liber unus.—LACUNÆ *Epitom. Operum* GALENI, p. 68.

where

the celebrated HOFFMAN[h], ARBUTHNOT[i], and MONTESQUIEU[j].

How far it may be in the power of the mind to resist, and counteract, the influence of temperament, climate, or any other bodily state which may have a tendency to deprave its moral feeling, and impel it to a vicious conduct; or by its exertions, and habitudes, to induce such a change in the bodily state as shall co-operate with its virtuous propensities; this is not a proper place to inquire. It will be sufficient, at present, to show that there is a mutual sympathy between the body and mind; and that certain states of the one infallibly produce, or are accompanied with, certain states of the other.

It is owing to this mutual sympathy and influence, that cheerfulness of mind is naturally connected with, and not only strongly tends to, but, no other more powerful cause of disease counter-

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[h] Med. Rat. Syst. tom. i. lib. i. § 1, cap. i. § 34, Oper. tom. i. p. 29,—and cap. ix. § 30, &c. Operum, tom. i. p. 52. —De temperamento fundamento morum et morborum in gentibus. Operum tom. v. p. 103—111.—Exercitatio physico-medica de mentis morbis ex morbosa sanguinis circulatione ortis. Supplem. vol. ii. p. 329—339.

[i] Essay concerning the Effects of Air on Human Bodies, p. 148, &c. &c.

[j] Spirit of Laws, book xiv. Of Laws as relative to the Nature of the Climate. Also book xv. &c. vol. i. p. 277, &c.—See JOHNSON's Lives of the most eminent English Poets, art. MILTON, vol. i. p. 189—193.

acting

acting it, will necessarily produce health of body: and that health of body, where no particular causes of distress intervene, is always accompanied with habitual cheerfulness of mind; and, where such causes do intervene, protects the mind from the influence of any trifling, or less urgent ones, and does not easily suffer it to be violently ruffled, or permanently dejected, by causes which would overwhelm with affliction such weak minds as infirmity, and disease, had rendered effeminate, pusillanimous, and gloomy.

For the same reason solicitude, timidity, grief, and every other anxious and distressful affection, weaken the body, diminish the healthful tones, and, when long indulged, introduce a most harassing, and dismal, train of nervous and other disorders: while, on the other hand, bodily disease, and especially of what is called the nervous kinds, is naturally productive, more or less according to its nature, degree, and duration, of languor, discontent, peevishness, dejection, and of all the painful, melancholy, and self-tormenting passions; which growing by habit, and the reciprocal growth of their causes, not uncommonly terminate in the inexpressible miseries of anxiety, and distress, or the more dreadful anguish of horror and despair.

It is from the same source that all the passions, whether gloomy or cheerful, selfish or benevolent, when excited by their proper external causes, produce

duce a determinate, and specific, state of body, as will be shown at large in its proper place; and that certain states of body, if they do not actually produce certain passions, at least dispose the mind to be strongly affected by such objects as have a tendency to excite them.—But to proceed to particulars.

There are certain circumstances in the state of the body on which its health, and vigour, greatly depend; and which are much concerned in the production of those agreeable, or disagreeable influences, with which the mind and body mutually affect each other.

As the various degrees of tension in the strings of a musical instrument, fit it to produce acute or grave, harmonious or discordant, pleasing or unpleasing sounds, in proportion to their intenseness, and to their mutual correspondency or disagreement:—so the various changes in these circumstances in the state of the body dispose it to move harmoniously, or discordantly, to every movement of the soul, or to the touch of whatever, from without, is by nature adapted to call forth its vibrations; and to affect the soul with pleasure, or pain, accordingly as those vibrations are of the one kind or of the other. The state of the body on which these vibrations, and on the changes of which these changes depend, has, for this reason, not improperly been called its *tone*:—not because any of its fibres, whether nervous, vascular, or mus-

 cular,

cular, are strung to vibrate like a musical chord, and thus to communicate sensation to the mind, or to receive motion from its impulses; but because a certain harmonious adaptation of its several parts fits it to be suitably affected by external objects; renders it exquisitely responsive to every impulse of the divine musician within; and disposes it, on every occasion, to affect the mind, with pleasure, or pain, in a due degree, and as the nature of the exciting cause requires, in proportion to the perfection, or deficiency, of its respective tones and harmonics.

This tone of body seems naturally divisible into three kinds,—the *muscular*,—*vascular*,—and *elastic*:—the last of which entirely depends on the general, and habitual, state of the constitution; is permanent during that state; is seldom capable of sudden changes; and is the basis of the other two; which for this reason depend, in like manner, a good deal upon the general state of the constitution; they are liable, however, at the same time, to be greatly influenced by the sudden action of a variety of occasional causes, as of the appetites, passions, pleasing or painful sensations, or the like, as will plainly appear after a farther explanation of their nature, and of the nature and effects of the passions on the muscular and vascular systems; and are, of course, capable of very considerable, rapid, and transient changes.

By *elastic tone* I mean that state of the body which

which results from the texture, and cohesion, of the constituent, and elementary particles, of its several parts; which varies as their texture, and cohesion vary; and in the variations of which consist their various degrees of mechanical strength, or weakness. The perfection, or middle point, of this kind of tone, such as we see in persons of high health, and of vigorous constitutions, may be called *firm;* and the extremes, on each side, of which we meet with examples in old, and in hard labouring, people on the one hand, and in children, in delicate people, and in all who have long laboured under enfeebling chronic disorders on the other, may be denominated *rigid* and *lax*.

In order to explain what I understand by *muscular tone*, it is proper to observe that every muscle in an animal body affects, as its natural state, a certain degree of contraction when, apparently, at rest; and that, when in an obviously active state, it still farther shortens itself:—that each muscle, excepting the sphincters, those of the vascular system, of the œsophagus, stomach, intestines, tongue, and perhaps a few others,—of which, however, all, but the sphincters, being placed round hollow cylinders, or composed of fibres which, running in contrary directions, counteract each other, are nearly in the same situation as to the resistance to their action,—has two fixed points, which oppose its contraction in

some degree, and keep it in a state of moderate tension:—that this tension admits of considerable latitude, and is liable to variation between the extremes, according to the various states of the muscular fibres themselves, of the vessels which nourish them, of the cellular membrane which surrounds and connects them, and of the nerves by which they are animated; and that the muscles act with more or less ease, steadiness, regularity, and force, in proportion as the degree of tension is greater or less:—that when, therefore, by means of a firm elastic tone of fibres, a proper supply of healthful blood to their vessels, and a sufficient deposition of the necessary fluid in the cellular membrane which surrounds every fibre, and every bundle of fibres, duly filling the interstices, the muscles have acquired just such a degree of tension as enables them to act on every occasion with ease, and strength, their tone may be said to be vigorous.—When from an increase of these causes, in a very full and healthy habit, and from much muscular exercise, they are able to contract with still greater force, they may then be said to possess an athletic tone.—But when, from an enormous quantity of fat, the muscular fibres are weakened, by being separated, over-stretched, distorted, impeded, and overloaded; and still more, when from a subsequent emaciation they are greatly relaxed; as well as, when, from a defect of their natural and healthful quantity of blood and other fluids, either

either from inanition, or from a fault in the chylopoietic viscera, occasioning a want of due nourishment, or from any other cause, they are both relaxed, and perhaps otherwise weakened, their tone may then be called *infirm;* and as well from a deficiency of a requisite degree of tension, as of a firm elastic tone, their exertions are weaker than they ought to be, and they are more or less apt to be thrown into spasms, in proportion to the degree of these imperfections; and especially if they happen, at any time, to act in an unnatural, or distorted situation, or to contract more strongly than is necessary to overcome the resistance they meet with.

Vascular tone is, for the most part, very closely connected with the elastic and muscular tones of the system in general; depends in a great measure, if not wholly, on the elastic and muscular tones of the coats of the vessels; and consists in the peculiar states of irritability of their muscular fibres, resulting from those tones.

When the heart, and arteries, possess that degree of elastic and muscular tones, and of irritability, which is necessary to the equal circulation, and distribution of the blood over every part of the body; when the vessels whose peculiar office it is to perform the several secretions, and excretions, are in like manner qualified for the due regular execution of the buisness allotted to them: and the absorbent and exhalent vessels are also in a pro-

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per state for the fulfilling of their several appointments; the vascular tone may then be said to be healthful.—When to rigid or firm elastic, and athletic or vigorous *muscular* tones, is added unusual irritability of the muscular coats of the arteries, their tone is then inflammatory. But when in the coats of these vessels there is a defect of elastic and muscular tones, the one being lax, and the other infirm, and consequently, a defect of nervous power, the vascular tone may be called *nervous*. In this tone of body, while the action of the heart and arteries, and of the whole vascular system, is too weak, it may be either too irritable and active, or too dull, and languid.

Thus we see that *elastic tone* may be either,—firm,—or rigid,—or lax:—

That *muscular tone* may be vigorous,—or athletic,—or infirm.

That *vascular tone* may be healthful,—inflammatory,—or nervous;—and that the last of these may be either too irritable and active,—or from a want of irritability, too dull and languid:—

That firm elastic,—vigorous muscular,—and healthful vascular tones, are naturally connected:—that the two former,—as well as the rigid elastic,—and athletic muscular,—have some degree of connexion with inflammatory vascular:—and that there is a similar relation between the lax elastic,—infirm muscular,—and nervous vascular.

There

There is, also, a mutual relation between the state of the tones, and that of the brain and nerves:—and as the state of the former depends, immediately, or more remotely, upon that of the latter; so the state of the latter has in its turn, either directly, or indirectly, a dependence upon the former.

This mutual dependence of one part of our frame, and constitution, upon another, is plainly observable in many of the functions of the animal economy; which are so closely, and intimately, connected, that it is not an easy matter to give an explanation of any one of them, without taking several things for granted, as already known, of some others, which have not yet been explained; that it is scarcely conceivable that one can be materially injured, without the others suffering at the same time;—and absolutely impossible for one entirely to cease without the others, sooner, or later, ceasing likewise;—all of them forming together a kind of circular chain, of which there is no beginning, and no termination; and of which every link has a necessary connexion, and dependence, upon all the rest. Thus the brain and nerves, which seem to be the very fountain, and origin, of life and motion, depend every moment, for the supply of their power, upon the organs of digestion, and chylification, upon the absorption of the lacteals, the passage of the chyle through the thoracic duct, the circulation

of the blood, and other functions necessary to animal life; and each of these functions depends, in like manner, immediately upon the brain and nerves, and more or less remotely upon all the others.

As the nervous power and animal functions have thus a mutual dependence; so have this power and the bodily tones, which rise or fall, are healthful or debilitated, flourish or decay, together. Indeed the several tones of the body seem to be nothing more than such states of its active and sentient parts as render it more or less fit to influence, or be influenced by, the mind, by means of the power residing in the brain and nerves, and immediately communicating with those parts through the channel of the latter; and, in the one case, to be excited to action by volition, and the passions, and, in the other, to excite sensation, according to certain uniform, and established laws of the animal machine, whence are derived all the possible varieties of motions, perceptions, and ideas.

Perfection, therefore of tones, perfection of health, perfection of sensation and voluntary motion, perfection of mental powers, and perfection both of bodily comfort, and intellectual serenity, where no natural or moral evils interfere to destroy the happy union, seem naturally related: and, while, on the one hand, the mind seems to be affected, for the most part, with ease, cheerfulness, and good

good spirits, by the vigorous; and with uneasiness, dejection, and languor, by the weaker, and less perfect tones; on the other hand, the opposite tempers of mind, cheerfulness and melancholy, reciprocally affect the body with the tones of vigour and health, or with those of infirmity and disease.

It may farther be added, that the firm, vigorous, and healthful tones, are connected with easy and accurate sensation, strong mental faculties, temperate passions, and rational fortitude;—the rigid, athletic, and inflammatory tones, with dullness of sensation, slowness of understanding, obstinacy of passion, and brutal courage;—and the lax, infirm, and nervous tones, with liveliness of sensation, quickness of conception, sensibility of passion, and great timidity.

The different temperaments of the ancients, so far as they had a real existence in nature, seem to have been little more than so many different combinations of these bodily tones.

The mind cannot act directly, and can, therefore, occasion no immediate change, on the elastic tones, which, resulting from the texture and cohesion of parts, can only admit of a gradual one:—but, by means of its instruments, the nerves, or rather, by means of the power residing in them, it can immediately, and instantaneously, act upon the muscles; as in the production of voluntary motion; and, perhaps of certain other motions,

motions, and affections, as tremblings, debility, and the like, which are the attendants of some of the passions, are the consequence of the violent commotions which they sometimes raise in the nervous, and muscular, systems, and have no dependence upon volition:—and it can likewise, by means of the passions,—seldom, and perhaps never, by volition,—immediately, and instantaneously affect the vascular system, and especially the heart and arteries, and produce at least a temporary change on their tone; as will particularly appear when we come to consider the influence of the passions, which, besides their ordinary effects on the body, have not only been known to occasion the most sudden, and wonderful alterations, in its state, but sometimes even death itself.

These changes produced by the mind in the muscular, and vascular, tones, when considerable, when of long duration, and when frequently repeated, may in time give rise to the corresponding changes in the elastic tones; and thus give habit, and permanency, to what was at first but accidental, and temporary. So much is it in the power of the mind to injure, or improve, the frame and constitution of the body.

In what the power of the nerves consists, and how it operates in exciting the motions of the muscular, and vascular systems, or in conveying sensation to the mind; is exceedingly difficult, if

if not impossible, exactly to determine:—nor, indeed, is it of much consequence, in our reasonings concerning its effects, to ascertain—whether the nervous power resides in an inconceivably fine fluid, peculiar to the animal system, secreted in the brain, distributed, by means of the nerves, to every part of it, and serving as an instrument of communication between the mind and body, as many have believed, and BOERHAAVE[g], with much plausibility, has endeavoured to prove; whether it be no more than the subtile medium which has been said by Sir ISAAC NEWTON[h] to pervade

[g] Institut. Medic. § 274, 275, &c.

[h] "Adjicere jam liceret nonnulla de spiritu quodam subtilissimo corpora crassa pervadente et in iisdem latente; cujus vi et actionibus particulæ corporum ad minimas distantias se mutuo attrahunt, et contiguæ factæ cohæreant; et corpora electrica agunt ad distantias majores, tam repellendo quam attrahendo corpuscula vicina; et lux emittitur, reflectitur, refringitur, inflectitur, et corpora calefacit; et sensatio omnis excitatur, et membra animalium ad voluntatem moventur, vibrationibus scilicet hujus spiritus per solida nervorum capillamenta ab externis sensuum organis ad cerebrum, et a cerebro in musculis propagatis. Sed hæc paucis exponi non possunt, neque adest sufficiens copia experimentorum, quibus leges actionum hujus spiritus accurate determinari et monstrari debent."—*Sir* ISAAC NEWTON's *Principia, as quoted by Dr.* BRYAN ROBINSON, *in his Observations on the Virtues and Operations of Medicines,* p. 2.

"I might here add something concerning a most subtile spirit which pervades, and resides in gross bodies; by the power, and action, of which, the particles of bodies mutually attract each

pervade the whole system of the material creation, and to which he has given the name of *ether*, under a peculiar modification in the bodies of animals; by means of the vibrations of which, as that great philosopher has conjectured, along the solid capillaments of the nerves, excited by external objects, and propagated to the brain; or excited by the will, and propagated from the brain to the muscles; an opinion which has been adopted by Dr. HARTLEY[i], Dr. BRYAN ROBINSON, and others; and which has great appearance of probability;—or whether it be owing solely, as some have advanced, to the peculiar structure, as a spiral[j], or other form[k], of the smallest nervous filaments themselves[l].

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each other at exceedingly small distances, become contiguous, and cohere; and electric bodies act at greater distances, both in repelling and attracting small neighbouring bodies; and light is emitted, reflected, refracted, inflected, and imparts heat to bodies; and all sensation is excited, and the limbs of animals are moved by the power of the will, the vibrations of this spirit being propagated along the solid capillaments of the nerves from the external organs of the senses to the brain, and from the brain into the muscles. But these matters cannot be explained in a few words, nor have we a sufficient number of experiments for the exact determination, and proof, of the laws by which this spirit acts."—See the same opinion proposed in the queries at the end of his Optics, p. 328, query 23, and 24.

[i] See HARTLEY on Man, vol. i. Prop. 5. p. 13—34, where much pains is taken to prove, and illustrate, this theory.

[j] VANDERMONDE.

[k] DE BORDEU.

[l] See HALLERI Element. Physiologiæ, lib. x. sect. 8, § 3, tom. iv. p. 360.

But,

But, whatever be the nature of the nervous power, if we allow the soul to be an immaterial substance, as philosophers have very generally thought they had the best, and surest, ground for believing it to be,—in which, according to CICERO[m], there is nothing that can give it any material property whatever,—it seems highly probable, that the body and soul, a material and immaterial substance, cannot physically act upon each other; and that their mutual effects are produced according to certain fixed and arbitrary laws of reciprocal influence, by which, and by which only, they were united to each other at first by the great Creator of the universe:—that, therefore, it cannot with such strict propriety be said that they act upon each other; as that certain states, and movements, of the body, are the exciting, or occasional causes, of certain determinate feelings, and volitions, of the mind; and that certain feelings, and volitions, of the mind, are in like manner the exciting, or occasional causes, of certain corresponding states, and movements, of the body. It is our business to discover what these states and movements, and their corresponding feelings and volitions, or, in other

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[m] "Nihil admixtum, nihil concretum, nihil copulatum, nihil coagmentatum, nihil duplex."—*Tusculan. Disputat.* lib. i. c. 29.

words,

words, what these laws of union are. And it is with this view, that I have here attempted to point out, though it must be confessed but cursorily, and superficially, those mechanical, muscular, and vascular states of the active, and sentient parts of the body, which in a great measure correspond with, and are either the causes, or effects, of the various states of the mind; and what in general the corresponding states of the mind and body are.

With the same view I shall now proceed to say something more expressly concerning the nervous power, and its laws of acting; since this power, whatever it is, residing in the brain, spinal marrow, and nerves, is the immediate instrument of communication between the material and immaterial part, and the very source and beginning, if any thing can be said to be the beginning where all the parts and functions have a mutual dependence on each other, of animal life, sense, and motion; and is the direct, and active cause, by which every function of an animated body is kept up, from the moment of separation from the parent animal, till the final disunion of the material and immaterial principle, at the period of this mortal life. I shall close this subject by enumerating a few particular, and most of them well known, facts, which may serve farther to illustrate the mutual influence of the mind and body on each other.

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The essential, and distinguishing properties common to all, or at least to the more perfect animals, are *life*, *spontaneous motion*, and *sensation*.

I say nothing at present of the higher powers of the mind; as the consideration of them is not necessary to the understanding of what is immediately to follow; and as it is a disputable point whether they belong at all to some animals; and whether more than a very small portion of them be possessed by any other animal than man.

Life, or automatic and involuntary motion, depends upon *irritability*;—spontaneous motion upon *volition*,—and sensation upon the *perceptive power* of the mind,—volition moving the body, and the perceptive power of the mind receiving sensation, through the mediation of irritability.

Of these sources, therefore, of life, motion, and sensation,—volition and perception are *mental powers*; and irritability alone is a *bodily one*.

I here employ the term *life* in a very narrow, and restricted sense; and not only confine it to the energies of the animal kingdom, but to those motions of the animal machine which are carried on independently of the mind. This may seem, on a slight view, to have a near resemblance to what is commonly called *vegetable life*; I apprehend, however, that there is an essential difference; and that, though there may be no impropriety, provided this difference be kept in view, in denominating

minating the one *animal*, and the other *vegetable* life, it might, perhaps, be still better, while the former is, by way of eminence, styled *life*, to distinguish the latter from it simply by the name of *vegetation*; from which animal life appears to differ in a variety of respects; particularly in its dependence upon the peculiar apparatus of the nervous, of the muscular, and of the vascular, systems; the *first* of which is the source of irritability, the *second*, by the property of contraction which it possesses in an extraordinary degree, is the immediate instrument of motion, and the *last* by its appropriate structure, and the aid of the same contracting power, is the means of keeping up an incessant circulation of the animal fluids, the heart by its contractions, impelling the blood through the larger arteries, and the capillary vessels, by their oscillatory motions, continuing the circulation begun by the heart. For nothing like nerves, much less like the whole nervous system of animals, has been discovered in vegetables. And, since they afford no appearance of muscles, we have no right to conclude that the very few instances of their motion, which seem to have some resemblance to muscular motion, such as the shrinking of the leaves of the sensitive plant[a], on being touched, the extraordinary motions of the

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[a] The mimosa sensitiva of LINNÆUS, also the mimosa viva, and some others of the same genus.

moving

moving plant[o], the closing, or other change of position, of the leaves of some plants, and the drooping of the flowers of others in the night-time, termed by LINNÆUS[p] their sleeping[q]; and the opening and shutting of the flowers of certain plants at stated hours, which he calls their *watchings*[r],—are really the motions of a muscular system; especially as the texture of vegetables is usually too rigid to give countenance to such a supposition; and as, in all the known instances, their motion seems to be effected by the external, or internal operation, of certain material substances, as light, heat, and the fluids moving in their vessels, on their peculiar structure. Nor do we find in vegetables any thing bearing much resemblance to the circulation of the blood in animals; the motion of their fluids appearing to be begun by means of an attractive power, and not by any impelling force; to be carried on through their whole vascular system, if it may be so termed, by the uniform and continued exertion of the same power in every part; to be without any apparent vascular contraction; to proceed in a perpetual progression; and to be chiefly influenced by the seasons, and by the

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[o] Hedysarum movens.

[p] See Dissertation lxiv. entitled Somnus Plantarum, in his Amœnitates Academicæ, volum. iv. p. 333.

[q] Somnus.

[r] Vigiliæ.

 tempe-

temperature of the air.—It must, notwithstanding, be confessed, that in vegetation there is a power something analogous to that of animal life, and irritability; though greatly inferior in degree; and, probably, as different in kind, as are the several attractions of gravitation, cohesion, magnetism, electricity, and the elective attractions of the chemists.

Irritability has its seat in the brain, spinal marrow, and nerves; and its origin in the brain. It depends a great deal, if not altogether, upon their proper texture; is the immediate cause of muscular motion, both voluntary and involuntary; and the means of conveying sensation to the soul.—That irritability depends, in a great measure, upon the texture of the nerves, and varies as that varies, appears so evident, as scarcely to need a proof: since it is notorious, that wherever a nerve is injured, or its texture any way altered, either by compression or otherwise; whether at its origin in the brain, or spinal marrow, in its course, or in the part to which it is distributed; the irritability of the nerve below the injury, or alteration of its texture, and of the parts which it supplies, is, according to the nature of the change, either increased, diminished, or destroyed: as we see, to mention a few instances, in the increase, or diminution, of strength, and sensibility, according to the state of the brain, in insanity; in their diminution,

tion, or destruction, in palsies; and in their increase in consequence of that change of texture in the extremities of the nerves which accompanies inflammation. Nor does it make any material difference, in this respect, whether the medullary substance of the nerves consist of solid capillaments, along which vibrations are transmitted; or of hollow cylinders, containing an exquisitely elastic nervous fluid, capable of receiving and conveying vibrations; or be of any other appropriate, and necessary construction.

Whatever motions are excited by the mind, in consequence of volition, are denominated voluntary, or spontaneous motions: for as to those muscular, or vascular, actions which are excited by the appetites and passions, without any express act of the will, they being necessary, do not come within the present description.

Volition, therefore, so far as it relates to the immediate operation of the soul upon the body, is the exciting cause of every determinate action of certain muscles of the body, which being obedient to the will, are therefore said to be capable of voluntary motion.

Sensation is the mental perception of the impressions of sensible objects, whether external, or internal, upon the body; which, being made in a variety of ways, according to the differences in the nature, and action, of the objects themselves, and of the organs of sense to which they

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are applied, are conveyed to the mind by the power, or irritability, of the nerves.

Life is carried on, spontaneous motion is produced, and sensation is communicated, by stimuli, or exciting causes, of various kinds, acting upon the irritability of the nerves. The operation of these causes may not improperly be called *excitement*, because whatever be their nature, or mode of action, the effects which they give rise to are never merely mechanical.

These stimuli are either corporeal or mental.— The corporeal may be divided into two kinds, accidental and natural; and of these the accidental may be subdivided into mechanical, acrimonious, and specific. The mental may be divided into necessary, and voluntary.

We may reckon, therefore, six different kinds of stimuli, or exciting causes; the mechanical, acrimonious, and specific,—the natural,—and the necessary, and voluntary.

Mechanical stimuli are those which act by their bulk, figure, hardness, or in short, by any mechanical property whatever: as any hard substance, whether large or small, acting with force, externally, and bruising, or lacerating, the body; a knife, sword, or other edged, or pointed instrument, wounding, or piercing it; any extraneous substance, or preternatural tumor, compressing, loading, or any way injuring by its bulk the neighbouring parts; or any hard, and sharp

sharp substance, contained within the body, and injuring it internally, as a stone in the bladder cutting, and abrading, by the action of its rough and angular suface, its internal coats.

Acrimonious stimuli act upon the body, not by their general and mechanical, but by their peculiar and sensible properties, as all bitter, astringent, nauseous, sweet, sour, salt, pungent, caustic, ignited, and many other substances, whose action seems to depend on the sensible qualities which manifest themselves to the taste, or upon chemical attraction.

Specific stimuli, such as are most of the vegetable poisons, often occasion the most violent effects without possessing any very conspicuous sensible qualities, and always without possessing such as appear to be in any degree adequate to the effects which they produce.

Natural stimuli are those without which the essential offices of animal life could not go on: as the stimulus of the blood to the heart and arteries, and to the organs of secretion; the stimulus of the motion of the air on the drum of the ear, and that of light on the expansion of the optic nerve, in order to excite in the mind the sensations of sounds, and images.

Necessary stimuli are certain states of the mind which produce certain determinate changes in the body, without any volition of the mind, that such changes should take place. These states are chiefly connected with the appetites

 and

and passions; and comprehend every idea, or notion, which makes either an agreeable, or a disagreeable, impression upon the mind.

Voluntary stimuli are such acts of the will as have the power of exciting those corresponding motions of the body, which, from the cause of their excitement, are called *voluntary motions.*

As the mental stimuli act upon the body, and the bodily stimuli upon the mind, through the mediation of the power, or irritability, of the nerves; their effects will vary, as this power of the nerves varies; will increase as it increases, decline as it declines, and cease as it ceases; and as the variations of irritability are partial or universal, so will those of bodily influence on the mind, or of mental influence on the body, be partial, or universal.

Irritability may be diminished throughout the body, by a disordered state of the brain, or of the tones; or in any particular part, by a disordered state of the nerves going to that part, or of the nerves of the part itself. Any tumor of the coats of a nerve, or of the surrounding parts, which shall compress its medullary substance, may be sufficient to diminish, or destroy, both sensation and motion in every part to which the injured nerve is distributed. A disease of the medullary substance of a nerve may produce the same effects. Sir ISAAC NEWTON[*] supposes that

[*] Queries at the end of his Optics. Query 24, p. 328.

the

the nervous capillaments are pellucid, and that obstructions injuring their pellucidity, and by that means interrupting the vibrating motions of the ethereal medium, create palsies. It seems, also, probable, that the power of the nerves may sometimes be increased by a disordered state of the brain; since it frequently happens, in cases of insanity, that weakness and dejection are suddenly succeeded by vigour and cheerfulness, in consequence of a sudden, and conspicuous change, in the state of the brain; as is seen in the transitions from hypochondriacal, and from several of the species of pathetic, to maniacal, incoherent, or phrenitic insanity: and in the same transitions, from languor, and distress, to the opposite extremes, in any of the species of ideal insanity.

But granting that the brain and nerves are in a sound, and healthful condition; their power may, nowithstanding, be improved by exercise, or injured by disuse. Motion, and sensation, depend upon irritability; and that they may, in some degree, repay the obligation they are under, they are both capable, by the exercise of frequent and habitual excitement, of improving the power to which they are indebted for their existence; and, in so doing, they still farther improve themselves. In this improvement of motion, sensation, and irritability, by exercise, the mind is a principal instrument: since the frequent exercise of motion must depend upon volition; and of sensation

upon attention of the mind to the movements, or vibrations, excited by the action of external objects on the irritability of the nerves: and thus volition and attention, by repeatedly exciting motion, and perceiving sensation, of the same, or of similar kinds, acquire a facility of managing, that is improve, the nervous power; the one with ease directing the body, and the other with equal ease receiving from it the impressions of sensible objects: in other words, accuracy and quickness of motion, and accuracy and quickness of sensation, are both to be acquired by attention, and exercise.

Irritability, sensation, and motion, may, on the other hand, be diminished by disuse; whether it be owing to any accidental impediment, as inconvenience of situation and circumstances, or bodily disorder, rendering the exercise of them difficult or impracticable; or to an habitual indolence of body and mind; or to that inactivity, and want of attention to external objects, which cannot easily be avoided, when the mind is intensely engaged in the contemplation of some interesting subject.

Irritability may likewise be improved or injured, either generally, or partially, by the necessary influence of the passions; those which are lively, or vigorous, increasing, and those which are depressing, or pusillanimous, diminishing its susceptibility, and influence.

And

And the diminution, or the increase, of irritability, may be either transient, or permanent, according to the nature of the cause from which these changes take their rise.

This nervous power or property of irritability, capable of acting without influencing, or being influenced by, the mind; without the mediation either of sensation, or volition; is sufficient of itself for the performance of those vital, and natural actions, which can be performed without the agency of any of the voluntary muscles; as the circulation of the blood, and secretions, absorption, perspiration, and the like. When excited, therefore, by the natural stimuli, only to a certain degree, no sensation is produced; most of the vital and natural actions being capable of proceeding without it. But when excited by these in an unusual, or by any of the other corporeal stimuli in a greater degree, it acts upon the mind, and sensation is excited of such a kind as corresponds to the cause of its excitement: and this sensation gives rise to volition; a re-action of the mind on the nervous power; and the generation of voluntary motion; if the nature of the cause be such as requires it. Irritability, however, alone, without sensation, is not sufficient for the carrying on of all the vital and natural actions. Some of the functions, as those of breathing[1], and of

[1] Breathing is carried on during sleep, and then probably with

of voiding urine and stool, cannot be performed without the aid of the voluntary motion of certain muscles, and, therefore, not without sensation. In these cases, it is so contrived by the wise Author of our frame, that the natural stimulus belonging to the part, shall, by accumulation, become so considerable as to produce a degree of irritation capable of exciting sensation, and that consequent exertion of the voluntary action of the requisite muscles, without which there could be no performance of those necessary functions.

That the nervous power, or irritability, in this manner gives life to the body, and is the means by which all the vital and involuntary actions are carried on, independently of the mind, seems to be sufficiently proved by many of the numerous experiments made, or referred to, by KAAU BOERHAAVE[u], WHYTT[v], and HALLER[w]; which not only show that the contractions of the heart, of the intestines, and of the muscles in general, are capable of exerting themselves, on the application of

with little or no sensation. This perhaps may be accounted for by the force of habit; which renders us unconscious of any sensation during ordinary respiration, even when we are awake.

[u] Impet. Facient. § 295, 296, 330, 331, 332.

[v] Of the vital and other involuntary motions of animals, sect. 14, Works, p. 183—207.—Also observations on the sensibility and irritability of the parts of men and other animals, sect. 2, Works, p. 283—292, and sect. 4, § 4, Works, p. 302.

[w] Element. Physiologiæ, lib. x. sect. 7, § 31, tom. iv. p. 337, et lib. xi. sect. 2, § 4—§ 16, tom. iv. p. 446, &c.

stimuli,

stimuli, always for some time, and frequently for a long time, after their connexion with the brain has been cut off: but afford some striking instances of the continuance of the vital and involuntary actions in different animals and under different circumstances, for days, weeks, and even months, after their heads have been separated from their bodies, or the brain has been entirely destroyed.

Notwithstanding these facts, the late learned and very ingenious physiologist, Dr. WHYTT, endeavoured to account for all the vital, and involuntary motions, from sensation, produced in the mind by the irritation of stimuli, and exciting it to perform these motions. In consequence of this doctrine, he not only found it exceedingly difficult, on many occasions, to keep clear of the Stahlian theory, which he disapproved, and which makes the mind a rational agent in the affair, and even the original fabricator[x] of

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x "Esse autem animam rationalem in hoc negotio causam efficientem, vel inde liquet, quod generationis opus maximi momenti res sit, quæ principium sibi postulat, non materiale, sed intelligens, a primo conceptionis momento formationem et structuram prosequendo, materiam extendendo, partes formando, formatas nutriendo, ut tam singularium partium, quam corporis totius justa conformatio ac structura inde resultet, destinatis finibus undiquaque commoda."—JUNCKERI *Conspect. Physiologiæ et Hygieines, &c. ad Dogmata Stahliana potissimum adornati*, tab. vi. p. 143.

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of the body which it inhabits, and rationally, and providentially, governs; but was reduced to the disagreeable dilemma of either making sensation itself independent of the soul, or of asserting that an immaterial substance, such as he believed the soul to be, is extended and divisible. Not to insist upon the manifest absurdity of supposing that sensation is the immediate cause, the *sine qua non* of all the involuntary, as well as of the voluntary actions; since, the mind not being conscious that any sensation is concerned in the excitement of many of the automatic motions of the body, it follows that, if it really does take place, sensation may not only be obvious and perceptible, but latent and unperceived.

The ingenious theory of Dr. Stuart, that the extremity of every nerve is a distinct and perfect brain, belonging to the organ, or part in which it terminates[y]; and that the soul is present, and perceives, and acts, in every part of the body

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"It will appear obvious that the rational soul must be the immediate agent in the affair of generation, if we consider that this business is a matter of the utmost moment, and requires, not a material, but an intelligent principle, which, from the very moment of conception, may be employed in so regulating the formation and construction of the animal, so modelling its various parts, and nourishing them when modelled, that the result of its operations may be such a finished form and structure, as well of the whole body, as of its several parts, as shall be perfectly adapted to fulfil their respective destinations."

[y] Dissertat. de Structura et Motu Musculari, p. 24.

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at the same instant of time[z]; is liable to similar objections.

These difficulties, and inconsistencies, are easily avoided, by granting that, though sensation is in many cases concerned, as a mental stimulus, in exciting motions in the body, both voluntary and involuntary, yet it acts but a secondary part; and is in every respect dependent on a primary power, without which it could neither act, nor exist:—that the nerves are possessed of this primary power; giving life to the body; being irritable, and capable of acting without the interference, or influence, of the mind; and being the instruments of communication between the mind and body:—that material objects may act upon this power of the nerves in such a manner as not to excite sensation, and yet excite involuntary, or automatic, motion; and that by acting more forcibly, or what amounts to the same thing, on parts better adapted for the conveying of it, they may excite sensation:—that the mind is capable of increasing, or diminishing, the activity of this power; and of thus quickening, or deadening, its own sensations, on the one hand; or of improving, or injuring, and even almost destroying, the activity of the muscles, on the other; by exertion and exercise, or by inattention and disuse. In this view of the matter, we may readily perceive how the mind can

[z] Dissertat. de Structura et Motu Musculari, p. 30 and 35.

give

give tone to the body, and the body give tone to the mind;—how the mind can enliven the irritability of the body, and the body quicken the sensibility of the mind;—and how both are apt to be invigorated or weakened, elevated or depressed, together.

As we cannot allow that sensation is necessarily concerned in every motion, whether voluntary or involuntary, of an animal body, and that the irritability of the nerves cannot be put into action, in the smallest degree, without exciting it:—so neither can we suppose, with Dr. HALLER, that irritability is a property of the animal gluten[a];—since such an hypothesis is not only inconsistent with the above theory; but, as has been clearly proved by Dr. WHYTT's experiments, and reasonings, is incapable of accounting for the phænomena of irritability, which evidently point out the nerves as the source of its existence.

As irritability is put into motion by the action of stimuli, either mental, or corporeal, so its specific operations on the mind and body seem to consist in certain specific vibrations of the medullary substance, or of some appropriate fluid, of the nerves, of the nature, and infinitely various modifications of which, we may possibly, for ever remain ignorant. Nor, indeed, does a mi-

[a] Element. Physiolog. lib. xi. sect. 2. § 12, tom. iv. p. 464.

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nute investigation of its mode of action appear to be of much real importance to the practical physician; to whom it may answer every useful purpose to have a general knowledge of some of the laws relative to the mutual influence of the mind and body on each other, and an intimate acquaintance with the particular facts on which such knowledge depends. I shall now proceed to enumerate a few of these particular facts.

The mind is affected in consequence of bodily affection, by whatever agent, whether external or internal, acts upon the body with a certain degree of force, which will be greater or less in proportion to the irritability, and office, of the organ acted upon, and causes such a change in the extremities of the nerves of the part concerned, as is sufficient to excite a sensation of feeling. It is more or less violently affected by such sensation, in proportion as it rises or falls in the scale of corporeal perceptions, if they may be so termed, from the lowest degree of simple feeling, to the very summit, and extreme, of exquisite pleasure, or agonizing pain. These several kinds of corporeal affection are the only means by which the body can act upon the mind; and may any of them be excited in any of the organs of sense.

Simple feeling has but little immediate influence on the happiness of our animal life; but on the sensations of pleasure or pain, our happiness or misery greatly depends. The latter is excited

either

either by a disordered state of the body, or by whatever in its healthful state, acts violently upon it; and the former by such impressions of sensible objects, as produce lively, but not violent sensations; and both of them are a good deal influenced by contrast.

Pleasurable sensations may be excited in the sense of feeling, by gentle friction; tepid bathing; grateful warmth, especially after being exposed to cold, in winter; cooling and refreshing breezes, in the shade, tempering the heat of summer; and not to mention a great variety of other causes, by the moderate and wholesome gratification of any of the appetites.

Sensations of the painful kind may arise from a wound, a burn, a bruise, a blister, intense heat, severe cold, hunger, thirst, spasm, and a thousand other more or less violent causes.

Pleasure, or pain, may in like manner be excited by the objects of the other senses, as seeing, hearing, smelling, or tasting.

Depraved, or peculiar sensations, may be communicated to the mind, by means of a depraved or peculiar state of body; as a sense of heat, or cold, in nervous people, from an increase, or diminution, of the vibratory motions of the small vessels.

Wine, opium, antispasmodic, tonic, stimulant, and other cordial medicines, and nourishing diet, by relaxing spasm, easing pain, and invigorating the

the tone of the body, produce, serenity, and cheerfulness.

But whatever weakens the body, whether by exhausting, impoverishing, and otherwise depraving the circulating fluids; or by defrauding the blood of its due supply of fresh, and wholesome, chyle, as happens in some disorders of the first passages; tends to produce languor, dejection, and melancholy.

Instances of the reciprocal influence, whether voluntary or involuntary, of the mind on the body, are equally numerous, and obvious.

The most conspicuous example of the voluntary influence of the mind on the body, is that general power which it possesses over all the muscles which are subservient to voluntary motion: a power which is natural, and with which every animal is born; but which is very imperfect, and particularly in the human species, till improved by exercise, experience, and habit. A child, when it first comes into the world, can, it is true, move its limbs, but their motions are irregular, and without aim, and seem more like the effects of irritation, than of volition. After a while it attempts to move them in a particular direction, with a view to the obtaining of some end by the performance of some determinate action; as when it endeavours to seize any thing by grasping at it; but the difficulty with which, after numerous trials, it accomplishes its purpose, shows how

how imperfect at first is its power over the muscles of voluntary motion: and it is not till after a long time, and much practice, that it acquires a free and ready use of them. Even men have a more or less perfect, and accurate, use of the voluntary muscles, in proportion to the diligence which they have exerted in exercising them; and can move their limbs with more or less dexterity and grace, in an almost endless variety of gradations, from the uncouth and clumsy rustic, whose motions are unwieldy and inelegant in the extreme, to the most accomplished in those elegant arts which require the nicest, and truest movements of the body, such as we admire in the first-rate dancers on the stage, or in the most wonderful performers on the violin, harpsichord, or any other difficult musical instrument.

This improved power over the muscles may again decline, or be destroyed, by an accidental bodily disorder, as a paralytic affection; or by the infirmity of old age, which naturally impairs every part of the nicely constructed animal machine; or by disuse, in consequence of which many of the delicate and complicated motions, requisite to a skilful performance in any exquisite art, which, though once acquired, has been long neglected, may be greatly injured, or entirely lost.

We have even instances of muscles over which the mind seems never to have acquired its intended power; as the muscles of the ear, which

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the early, and constant application, of strait bandages to the heads of infants, commonly renders so entirely useless, that a man who can move his ears is looked upon as a kind of monster[b].

The mind can, by a voluntary exertion of its power, restrain the motions which would naturally arise from irritation, wherever any of the voluntary muscles are necessarily, and principally, concerned in those motions; provided that the irritation does not occasion such violent sensations as to force them into action, and thus to render them, which is sometimes the case, no longer voluntary, but necessary, agents. By this voluntary exertion the mind can, to a certain degree, restrain coughing, sneezing, yawning, the hiccup, and even breathing; it can prevent shivering from a sense of cold; and it can check the discharges of urine and stool.

The mind may also, by long use and habit, acquire such a facility of certain voluntary actions, as often to perform them without being conscious of so doing.—Of this we have examples in the uniform motions of the muscles of the eye; in the adaptation of the chrystalline lens, and pupil, for the purpose of distinct vision, to the different distances of objects in the exertion of the muscles, in supporting the body in an erect posture,

[b] Vide HALLERI Element. Physiolog. lib. xv. sect. 1. § 4, and 5, tom. v. p. 190.

posture, which would otherwise drop to the ground, as it sometimes does on the sudden stroke of a palsy, and is in danger of doing from drowsiness after long watching; in a like exertion in holding up the head, which, without it, would drop upon the breast, as it does when we sleep in a sitting posture, without a support for it; in the exactly conspiring motions of a great number of muscles, so as to attain the proper end which the mind has in view, walking, running, jumping, swimming, dancing, fencing, and in the performance of an immense variety of other acquired movements in the exercise of the useful, or elegant, arts.

But besides the voluntary, there are other motions dependent on the mind, which are involuntary; and are either connected with sensation, with the appetites, or with the passions.

Direct sensation is an effect of the body upon the mind. When excited in any one part of the body, in such a manner, or degree, as to cause pleasure or pain, it generally more or less affects the whole, and not unfrequently produces conspicuous effects in some distant part. This diffusion of the effects of local pleasure or pain, which has been termed *sympathy*, has been attributed to the mediation of the mind. But it may be doubted, in many cases, whether the mind has any agency in the affair, and whether these effects would not equally take place without sensation,

supposing

supposing it possible that the same degree of excitement of the irritability of the nerves could exist without producing it. Indeed I must own that I am strongly inclined to suspect, that sensation is, on most of these occasions, only a concomitant effect produced on the mind, together with many others which are merely corporeal; which arise from the excitement of the nervous power of irritability in a certain manner, and to a certain degree; and are no way dependent on the sensation which accompanies them.

A sense of pain will stop many motions arising from irritation, or a less sense of pain.—Blisters will allay spasms, appease the irritation of a cough, and abate inflammation and delirium.—A stitch in the side, accidentally occasioned by an expansion of the chest to sneeze, or yawn, will often instantly check, and prevent, the performance of those operations.

Whether these effects have really any dependence upon the mind; and, if they have, how far they are necessary, or voluntary; I shall not here inquire.

The recollection of sensations formerly experienced, will sometimes excite the same, or concomitant sensations, or produce other disagreeable effects upon the body.—The recollection of the disagreeable sensation in the teeth, termed setting them on edge, excited by eating unripe, austere, and acid fruits; by the very

acute, or grating sounds, of rubbing or cutting a cork, or filing a saw; or by paring the nails to the quick, or rubbing the ends of the fingers, with the nails so pared, upon velvet, and other substances; and the recollection of the sensation of tickling; will in certain states of the nerves, and in people of irritable habits, instantly renew those sensations.—The recollection of the pains arising from spasmodic affections, in very delicate nervous and hypochondriacal people, is apt to revive the same painful spasms.—The recollection of a nauseous sensation in the stomach, or of vomiting, will readily renew the nausea, or vomiting;—and the sight, or the mere mental conception, of any thing filthy, and disgusting, will often produce the same effects.—The idea, smell, or sight, of a vomit, or purge, of which a person has frequently made use, has been known to excite vomiting, or purging*.—The sight of a person yawning, or the mere recollection of yawning, will almost infallibly produce an irresistible inclination to yawn.—And the breast of a nurse will begin to give milk when the infant which she has been accustomed to nourish is brought near it.

* TURNER, in his Treatise of Diseases incident to the Skin, gives an account of a young gentleman, his patient, who instead of taking an emetic bolus to which he had contracted an abhorrence, in consequence of the violence of its former operation, used to vomit himself merely by looking at it. Page 165.

Nor

Nor are the involuntary effects of the mind on the body, which are connected with appetite, less numerous, or less considerable. They are common, and obvious, and do not need to be enumerated. An example or two will be sufficient.

The lively idea of grateful food, or drink, whether we actually see it, or only talk, or think of it, will excite a flow of saliva into the mouth; and that sometimes with such violence, and impatience, as to spirt it out to a distance, and to cause considerable pain in the salivary ducts,—especially if, through attention of mind to study, or reading, a long neglect of moving the jaws, or any other means, none has flowed through them for a considerable time.

Ideas of the same kind will frequently excite the appetite of hunger, or of thirst, which was not perceived before.

And here it may be proper to remark, that all the appetites are eminent examples of the influence of the body on the mind, as well as of the mind on the body:—for certain changes being produced on the body, by their proper causes, excite, by acting on the irritability of the nerves, certain sensations in the mind of animal desire, which becomes a powerful motive to impel it to procure, by means of the proper objects, their peculiar, and natural, gratification:—and on the other hand, the idea of those objects arising accidentally in the mind, will, as has just been observed,

served, excite the corresponding bodily changes, and produce the real animal desire.

It may, also, be worth remarking, that the appetites afford a very striking illustration of the essential difference between the bodily power of irritability, and the mental one of sensation.—Irritability may have produced all those changes in the body, which should excite the appetite of hunger; but the mind, otherwise engaged, may not be at leisure to attend to those changes, and therefore may not feel an inclination to eat. That state of the body may actually exist, which ought to excite the appetite of thirst; but the mind, attentive to whatever deeply engages it, may not be sensible of a desire to drink. That state of the body may have taken place which should naturally produce the appetite of love; but the mind, absorbed in the contemplation of very different objects, may be no way affected by that bodily state; and may, therefore, never feel a desire which, however important to the multiplication, and continuance, of the species, is not necessary to the preservation, or well being, of the individual, and, for that reason, less importunate in its solicitations than the necessary appetites of *hunger* and *thirst*. They can seldom be long unattended to; but there are circumstances and states of mind, in which love, as an appetite, may never have been experienced, or, having been experienced, may be almost forgotten.

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I have already observed that it is in the power of the mind to increase or diminish irritability. Of its diminishing irritability the effect, above-mentioned, of its close attention to objects of a different nature, on the natural appetites, is partly an instance; as are the effects of its attention to the objects of sense and appetite, instances of its increasing it. For though irritability be so distinct a thing from sensation, and be very far from being universally and necessarily connected with it; and though it may of itself, and independently of sensation, produce such states of body as are requisite to generate the appetites by exciting those sensual perceptions which belong to them; yet as the exercise of sensation increases, and the disuse of it diminishes, the force and activity of irritability, so irritability generates, and unfolds the appetites, and brings them into action, more slowly, and with less certainty, frequency, and urgency, in men of contemplation, and virtue; whose thoughts are otherwise, and better engaged; than in the unthinking, and sensual, whose minds are more exposed to the solicitations, if not solely, and perpetually, employed about the pleasure, and gratification, of the appetites; and is in the one case rendered torpid by too little, and in the other it becomes morbidly active by too much excitement.

But of the power of the mind in diminishing, or increasing, irritability, we have in no instance, perhaps,

perhaps, a more distinct, and evident proof, than in its influence on the action of the coats and vessels of the intestines, by the excitement, or repression, of which, it can excite, or repress, the evacuation by stool. For as, when agitated by certain affections, it can, in many persons, by a constitutional sympathy, increase the irritability of the coats, and vessels, of the intestines, and excite spontaneous purging; so when its attention is strongly engaged by study; composition; the forcible intrusion of certain notions and images, in the delirium of a fever, or of madness; or by any other cause; the irritability of those parts, and indeed, of the body in general, may be so diminished, by the obstruction of such of the functions of the brain, as are necessary to the perfection of the nerves, and to the generation and accumulation of that, whatever it be, on which the power of irritability depends, as to lessen, and even destroy, the action of stimuli, and consequently to check, or prevent, the operation of a purge.

It must, indeed, be confessed that the diminution of irritability, though the principal, is not the sole cause, of the difficulty with which purges operate in insane persons, and others, where the brain is much affected, and its operations are disturbed; since it is often, in part, owing to a defect of sensation, where irritability has not failed to perform its office, occasioned by the intense

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and unremitting attention of the mind to the delirious images and notions which engage it: and in part to a voluntary resistance to the sensation which actually exists, and which, but for such resistance, would inevitably produce the requisite evacuation. For though sometimes, in diseases, the stools come away involuntarily, and without the consciousness of the patient; yet when a purge operates against the will, this effect seems to be owing in a great measure to the painful sensation which it excites; which partly overcomes the reluctancy of the will; and partly creates spasmodic motions in the rectum, and other parts concerned, which the mind cannot restrain.

The *passions* have also a very extensive and powerful influence, upon the body, of the same involuntary kind.

Emotions of the mind, arising from objects and ideas adapted to excite grief, joy, benevolence, or gratitude, will often occasion a flow of tears from the lachrymal vessels.

A sense of shame, or a modest acceptance of applause, will excite blushing, or an unusual glow of colour, and warmth, in the face, neck, and bosom; and particularly of young persons, and of the more delicate sex.

Any ideas, whatever, presented to the mind, which are capable of exciting passion, may, by such excitement, increase, or diminish, the velocity, and momentum, of the blood, or otherwise

wise variously affect its circulation, according to the nature, and degree, of the passion to which it gives occasion[d].

In a word, the passions are the principal instruments of the mind's agency on the body. Their

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[d] This will evidently appear to any one who considers the common, and specific effects of the several passions on the body. When violent, they often produce very violent and extraordinary effects; of which the following are instances.

"These [*violent passions*] alone, sometimes produce violent inflammations and gangrene. New recruits often fall into very obstinate disorders, if they be not dismissed from the army. Some are seized with an acute fever, which proves mortal; whilst others are either affected with *madness*, or become scorbutic. The author has seen wounded soldiers, who in their dreams being thrown into a violent fit of passion, their wounds inflamed, and became gangrenous.

"One of these men, who was of a cowardly disposition, in order that he might be sent to the hospital, made, with a blister, a large ulcer in his leg, which he contrived to keep open by various means. He was admitted into the hospital, and the author cured him in a few days. On being informed of the necessity there was for his joining the regiment, he discovered great signs of fear, and remained silent. In two hours he was seized with cold and hot fits alternately, accompanied with a pain of the head; the leg began to inflame and tumify, and next day, notwithstanding he was blooded, there appeared a gangrene, which in a few days spread over the whole calf of the leg: but by bleeding, and the use of the cortex, he was entirely cured."—*From the account of a Chirurgical Treatise on the Phlegmone, and its Terminations, by* JOHN ALEXANDER BRAMBILLA, *First Surgeon to the Emperor—in the Foreign Medical Review*, part ii. p. 117.

effect

effect are various, sudden, and on many occasions, violent: and will be found to throw much additional light on this subject, when we come to treat of them somewhat at large in their proper place.

(A.) BODILY CAUSES.

I. *Internal Causes seated in the Brain, its Vessels, and Membranes.*

I now enter, more particularly, upon the consideration of the *remote causes* of insanity: in treating of which, I shall not pay any very exact attention to the distinction of *predisposing* and *occasional* causes; nor be solicitous to ascertain which are of the one kind, and which of the other; or how far, and in what respects, on different occasions, the same cause may partake of the nature of either. Dr. LORRY, who divides insanity into two kinds, which he calls *nervous* and *humoral*, reckons a delicate and irritable[e] constitu-

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[e] "Nec minus probatum confidimus eam [melancholiam nerveam] duplicem esse; unam in qua nervi quasi accensi, ultra constitutas a natura toni metas, transiliunt et abripiuntur: alteram in qua extra ordinem, in absurda quæque abnormes pulsisque repagulis, feruntur."—"Inquisitionis ergo nostræ argumentum

constitution, liable to violent and inordinate nervous affections, as the predisposing cause of the former; and of the latter the melancholy temperament of the ancients, or what he rather chooses

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gumentum constituunt causæ evidentes, quæ hinc nerveam actionem intendere possunt; illinc vero eam pessundare."—"Efficit morbum cum causa occasionali, conditio corporis huic recipiendo apta.—Hanc inducunt causæ ipsæ melancholiæ a longo tempore agentes, et quæ dum corpori insident, ipsam quasi aptant et figunt ad melancholiam. Hic præcipue jure recensentur, tenella constitutio, prava educatione præsertim pravam naturam debilitante."—*De Melancholia*, tom. i. p. 81, &c.

"Nor is it, I am persuaded, less evident, that nervous melancholy is of two kinds; in one of which the nerves, being strongly excited, overleap, and are hurried beyond the boundaries of tension established by Nature: in the other, being disposed to act in a disorderly manner, they deviate from their usual course into every kind of absurd, and irregular exertion.—The proper subjects, therefore, of our inquiry, are those evident causes which are capable of increasing the nervous action on the one hand, or of perverting it on the other.—In the production of the disease, it is not only requisite that there should be an occasional cause, but the concurrence of a fit disposition of body for its reception.—This disposition may be induced by a long continued action of the very causes of melancholy, which, having once taken up their residence in the body, may gradually mould, and fashion it, as it were, for the reception of melancholy. And here the pre-eminence is justly due to a delicate constitution; and especially when an injudicious education has conspired to debilitate what Nature had originally made but too infirm."

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to call an intemperament which is, at the same time, melancholy, cold, and dry[f].

But, not to mention that it may justly be doubted whether there be, in reality, any such humour in the body, as that which the ancients termed atra bilis, and, consequently, whether there be, strictly speaking, any such temperament as the atrabilious, or melancholy; it is certain from experience, and will appear obvious, after having gone through the investigation of the remote causes, upon which we are now entering, how inadequate the predisposing causes mentioned by Dr. LORRY, are to the purposes

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[f] "Cæterum quicquid huc usque de causis melancholiam invehentibus diximus, ita intelligendum est, ut non ex rei necessitate melancholiam inferent illæ, cum per se natæ sint et alia et pessima mala producere. Verum requiritur prædispositio quædam a natura accepta, aut arte conquisita, et a repetitis earumdem causarum ictibus altius intrusa, quod melancholicum temperamentum veteres vocaverant; nos vero rectius intemperiem melancholicam, frigidam porro et siccam."—*De Melancholia*, tom. i. p. 293.

"What we have hitherto said of the causes of melancholy, is not so to be understood as if they were necessarily productive of this disorder; they being of their own nature capable of producing other, and those very grievous maladies. To give occasion to melancholy there must be a certain predisposition, either received from Nature, or acquired by art, and deeply rivetted by the repeated action of the same causes, which was termed by the ancients the melancholy temperament; but which we may style, with more propriety, an intemperament which is at the same time melancholy, cold, and dry."

assigned

assigned to them; and that persons of all constitutions, and of all temperaments, are liable to this disorder, when affected by exciting causes of sufficient force, and efficacy. And indeed Dr. LORRY himself seems tacitly to acknowledge their insufficiency, when he tells us that this predisposition "may be induced by a long continued action of the very causes of melancholy, which, having once taken up their residence in the body, may gradually mould, and fashion it, as it were, for its reception."

Of all the causes mentioned under this division in the table, we derive our knowledge from the dissection of the heads of such as have died insane. The authorities on which they are here inserted may be found in the preceding Section. How far each of the appearances here set down as a cause, when it occurs after death, has actually been concerned in the production of the insanity which existed during life, may be a difficult matter to determine. It is obvious that they are all more or less capable of affecting the brain, its vessels, or membranes, by compression, irritation, or both. It has already been observed that the same appearances which are found after death to have accompanied insanity, are also found to be attendants upon many other diseases. Whence they derived that specific determination which led to the production of insanity, and from what peculiar modifications of compression or irritation, resulted

resulted the several species, will be more properly a subject of inquiry in treating of the proximate causes.

II. *External Causes which operate mechanically upon the Brain.*

1. *Exostoses of the inner table of the skull* have been enumerated among the occasional causes of this disorder[g]. In proportion to their magnitude they must, in a greater or less degree, compress and irritate the brain. It is possible, therefore, that they may sometimes be the exciting cause of insanity; and especially in those instances in which it appears to have owed its origin to inveterate venereal complaints.

2. 3. That *depression*, or *fracture* of the skull, and *concussion* of the brain, should be the causes of compression, and irritation, is equally apparent. There have been many instances in which these accidents have given occasion to insanity; and there are even some in which they have cured it. HOFFMAN[h] relates two cases of insanity, one from SANCTORIOUS, of a youth who was cured by a wound which had penetrated his skull, and destroyed a portion of the substance of the brain;

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[g] Dr. BATTIE's Treatise on Madness, p. 46.

[h] HOFFM. Oper. Supplem. Secund. Part. Secund. p. 333, § x. et p. 336, § xv.

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and who from being implacable, rash, and perfectly irrational, became so mild, and reasonable, that few could equal him in the wisdom of his conduct, or conversation: and the other from RONDELETIUS, of a similar cure, in consequence of a fracture of the skull which had let out a watry fluid. And in SCHENCKIUS's collection there is a history of a madman who happening to be so wounded in the head, that his skull was fractured, was free from his insanity while the wound remained open; which, however, returned again when it was healed: and of two women who were cured by falls[a].

4. Nor is it less evident to the medical reader, how the *immediate action of the burning rays of the sun upon the head*, may in like manner, affect the brain by irritation, and compression. It is well known that external heat, upon all occasions, excites quicker than ordinary vibrations in the small and capillary arteries of the parts on which it acts; that these accelerated vibrations are readily communicated to the neighbouring small arteries; that this increased action of the surrounding small arteries, forcing a greater quantity of blood than usual through their cavities, in a given time, must of course accelerate the motion of the vital fluid through the vessels by which

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[a] SCHENCKII Obs. Med. Rar. lib. i. Obs. 8, 9. p. 128.

they

they are immediately supplied, and soon through a still larger series of vessels, in proportion to the violence, and duration, of the first exciting cause; so that the more intense the heat, the greater will be the quantity of blood which will pass through the small vessels of the part immediately affected by it, in a given time; and the influence of this increased action of the smaller arteries will gradually extend along the larger ones from which they derive their origin, and ultimately even to the heart itself, that the blood may be plentifully supplied where it is largely demanded. And all these effects will be increased in a progressive ratio, by means of the irritation arising from the accumulation of blood in the corresponding veins, from the consequent distention, and pain, of the neighbouring parts, and from the immediate operation of heat upon the irritability of the nervous system, the longer the heat continues to act upon the part more particularly exposed to it.

When, therefore, by any imprudent or unavoidable exposure, in hot climates, the burning rays of the sun act long, and immediately upon the head, it is obvious that there must be an unusual derivation of blood to the part thus immediately, and powerfully, acted upon by heat; that, since the activity of the veins, being much less considerable than that of the arteries, will be much less influenced by the stimulating power

of the heat than the arteries are, the blood must rapidly accumulate in the veins and sinuses of the brain and its membranes; and that the brain must, of consequence be suddenly compressed, and irritated in a very great degree;—it is no wonder, therefore, that highly delirious fevers, and insanity, should be frequent, and violent; sudden in their attack, and rapid in their progress; in very hot climates.

HOFFMAN[i] says that long exposure to the rays of the sun, especially in the dog-days, may either be the originally exciting cause of insanity; or may renew its paroxysms: and the late Dr. BATTIE[k] tells us that he once met with an instance of a sailor, "who became raving mad in a moment while the sun-beams darted perpendicularly upon his head."

5. When the *head is remarkably small*, in comparison with the size of the body; which it must of necessity be if the sutures of the skull, becoming obliterated in early youth, check its growth before it has acquired those dimensions which are requisite to the preservation of a just proportion between it and the other members, when arrived at a state of maturity; not only the due expansion, and unfolding, of those parts

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[i] Oper. Supplem. Secund. Part. Secund. p. 344, § xvi. (12).
[k] Treatise on Madness, p. 47.

of

of the brain on which the perfect, and unimpeded, operation of its functions, and consequently a sound understanding, depends, may be prevented; but the quantity of blood sent to it, may be rendered disproportionate, and its momentum increased, by the smallness of its capacity; and the over-distended vessels of that delicate organ, may so compress and irritate it, as to give occasion to insanity of some species, or other.

WILLIS, in his Anatomy of the Brain, gives a figure of it, as he had observed it in a youth who had been an idiot from his birth, and in whom it was found to be less than it ought to have been. As might be expected in such a brain, which, in consequence of being of less magnitude than usual in bodies of the same size, would probably possess solid parts in too small a proportion to its vascular cavities, because these cavities would be too much distended by the undue proportion of blood circulated through them, and would by their distension compress, and reduce in a smaller compass, the solid parts, it was not only less, but more flabby than it naturally is in its sound, and perfect state[1].

6. I have introduced a *swelling in the neck* into

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[1] WILLIS Cerebri Anatom. p. 14, cap. iii. fig. 4.—BOERHAAVII Prælect. Acad. de Morbis Nervor, tom. i. p. 128

this division of the table of the causes, upon the authority of BRASAVOLUS, as I find him quoted by SCHENCKIUS[m]. But whether, in the case he has related, it operated mechanically, by compressing the jugular veins, and thus occasioning a plethoric state of the brain, or in some other manner, appears somewhat doubtful. I have, therefore, placed it here rather as a cause which might possibly give rise to insanity in this way, than as one certainly known to have done so.

III. *Causes affecting the Body in general, which produce Insanity, either by acting directly upon the Brain, or by introducing a gradual change in the System which disposes to Insanity.*

1. In cases of *phrenzy*, *small-pox* accompanied with delirium, and *other delirious fevers*, the intellectual disorder may continue after the fever has ceased, and the acute delirium of the fever be converted into the chronic one of insanity; or the fever may have so injured the brain, as to leave in it a disposition to returns of the delirium, which may again be excited by any suitable, and even slight, occasional cause, without a return of the fever; or some trifling, or merely symptomatic fever, may accompany the first attack of returning delirium, and may speedily cease

[m] SCHENCKII Obs. Med. Rar. lib. i. Causæ, Obs. i. p. 132.

with

with little or no abatement of the insanity:—or delirious fever may have so debilitated the body, diminished the healthful tones, induced morbid irritability, and sensibility, excited uneasy and painful sensations, and, in a word, may have so weakened the brain and the whole nervous system, as to have given rise to chronical complaints which may dispose to, and readily terminate in, insanity.

Of the production of insanity, by each of these causes, there are such frequent instances, that it would be needless to adduce any particulars in proof of it; and the mode of production is so obvious, as scarcely to require an explanation. Whatever be the kind of delirious fever from which it originates, the exciting cause will be nearly the same: there will be accelerated vibrations of the small vessels of the brain, and an increased determination, and accumulation, of blood in them, variously distending, compressing, and irritating, the several parts of that delicate organ. That such an increased velocity of circulation as takes place in fevers, is of itself sufficient to occasion delirium, and especially if at the same time it be so vigorous as to determine the blood with any extraordinary force to the head, is evident from the many instances which occur of delirium in intermittent fevers, in which it only shows itself in the height of the febrile paroxysm, and disappears as the fever declines.

declines. I have known several examples of the generation of insanity, or of its reproduction in persons who had been formerly subject to it, by intermittent, and remittent, as well as continued, and inflammatory fevers.

Indeed it is so common a case for the delirium of a fever to terminate in insanity, that BOERHAAVE[n], VAN SWIETEN[o], HOFFMAN[p], and most practical writers who have had occasion to treat of this disorder, have not only mentioned the phrenzy, but ardent, putrid, bilious, variolous, and other exanthematous, and intermittent fevers, when accompanied with delirium, among its frequent occasional causes.

We are told by DIONIS in his account of an attempt made at Paris to introduce into medicine a new practice, which consisted in transfusing the blood of a young, and healthful animal, into the veins of an old, or diseased one; by means of which it was proposed to cure or prevent diseases, to preserve or restore youth, and to prolong life; that all those on whom the experiment was tried became suddenly insane, and died rav-

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[n] Aphorism, § 1108. 2, § 1125.—De Morb. Nerv. tom. ii, p. 412.

[o] Comment. in Aphor. § 1108. 2, § 1125.

[p] Med. Rat. Syst. tom. iv. Part iv. cap. viii. § 18. Operum, tom. iii. p. 254—and p. 262. Cautel. et Observat. Pract. § 1.

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ing‡. This unhappy termination of a project, of the success of which they had conceived such flattering expectations, is supposed by VAN SWIETEN to prove how much we have to apprehend from the introduction of any foreign substance, however mild, into the circulating blood; of which he esteems drunkenness to be another example. But as the latter seems, in a great measure, to be the effect of a sympathy between the stomach and the brain; so the former might probably arise from too plethoric a state of the vascular system, occasioned by the quantity of blood transfused, together with an increased determination of it to the brain, the natural consequence of such a state; rather than from any thing

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‡ "Ils firent plusieurs de ces operations qui devoient, selon eux, avoir un succes surprenant; mais la fin funeste de ces malheureuses victimes de la nouveauté, detruisit en un jour les hautes idèes qu'ils avoient conçues, ils devinrent foux, furieux et mourarent ensuite. Le parlement informè de ce qui s'etoit passè, interposa son autorité, et donna un Arret par lequel il etoit defendu sous des rigoureuses peines de faire cette operation."—*Cours d'Operations de Chirurgie*, p. 498.

"They performed several of these operations, from which they promised themselves the most wonderful success. But the dreadful end of the unhappy victims of this new practice, destroyed in one day their visionary expectations; they all became insane, and died raving. The parliament, being informed of what had passed, interposed its authority, and issued a proclamation, in which the operation was prohibited under very severe penalties."

neces-

necessarily noxious in the introduction of a foreign substance, merely as such, into the course of the circulation.

2. It is pretty generally allowed that insanity, and especially of that division which I have termed *ideal*, is a very common disorder in *hot climates*. Nor is it difficult to conceive how intense heat may readily produce it; whether we consider it as immediately affected, which it seems not unfrequently to be, by the rarefaction of the blood, and the consequent fullness of the vascular system; by its accelerated motion; by the unusual irritability, and inflammatory tone, of the blood-vessels; and by the increased determination of the circulating fluids to the head; without the intervention of any great degree of fever: or as the consequence of those ardent, and delirious fevers, which are so common, and so violent, in countries much exposed to the burning rays of the sun: or as the offspring of that exquisite irritability and sensibility, of that susceptibility and keenness of the appetites, of that quickness and activity of the imagination, that liveliness and vehemence of passion, so conspicuous in the countenance and habit of body, in the manners and conduct, in the religious sentiments, and in the literary compositions, where literature has any existence, of the numerous nations who inhabit the torrid, and the warmer climates of the temperate zones.

The

The learned and ingenious Dr. LORRY[*], draws a striking picture of the effects of the too exquisite irritability, and sensibility, of the inhabitants of the southern parts of Asia.—"Among them," he observes, "the arts and sciences received their first rudiments; but were prevented, by the want of perseverance, and impatience of labour, from rising to the highest degrees of perfection. Poetry is so natural to them, that their common language is, in our estimation, absurdly metaphorical. If we take a view of their manners, they are no less extravagant. Their courage is fury, and outrage; and their fear pusillanimity. Crimes, in the pages of oriental history, are every where blackened with incredible barbarity; and the examples of virtue, and wisdom, appear to be scarcely human. There we see piety, contaminated with fanaticism, wisdom obscured by fable, and science involved in mystery. In these regions, mad and ungovernable love taught the art of locking up in seraglios, and enslaving to the will of one man, the most beautiful of the human species. Here the fire of love glows with so much ardour, and so possesses, and inflames, the whole man, that neither threats, nor the fear of death, can extinguish an affection which has once been lighted up. Here the sensibility of the passions requires to be

* De Melancholia, tom. i. p. 84, &c.

soothed

soothed by opium. Hence in no other part of the world is nervous melancholy found in a greater degree, as we learn from ARETÆUS, GALEN, BONTIUS, PROSPER ALPINUS, and from almost all the Arabian writers, but especially AVICENNA, who has distinctly described no less than three species of purely nervous melancholy.—Hence this kind of insanity is not only frequent among these people, but in an excessive degree. Hence it is common for their imaginations to be so strongly affected, that they will grow delirious about an object on which they have placed their affections, and wound their own bodies to obtain it. No where else are they more influenced by religious fear, or terrified by the denunciations of their prophets. These prophets, who are called *Bonzes*, whirl themselves round till their imaginations are disordered, and when they have worked themselves up to a degree of enthusiasm, perform the most absurd, and even horrid actions, under the sacred notion of religion.—And so excessive are the effects of music upon these susceptible people, that from this circumstance the notions of charms, incantations, and enchantments, have derived their origin."

In our own, and in other temperate climates, insanity is observed to be more frequent in summer; and especially during the heat of the dog-days, or after a long continuance of very hot, dry, and sultry weather. In these ardent seasons, the fiery temperature of the air not only

rarifies

rarifies the blood, stimulates the heart and arteries to quicker and stronger contractions, determines an unusual quantity of blood to the head, and by these and the other means above-mentioned produces immediate insanity of the more violent kinds; but by dissipating the fluid parts of the blood, and enfeebling the solids, when it continues for any great length of time, may with the assistance of other concurring causes, gradually lay the foundation of this disorder, and prepare the way for subsequent attacks of it in the less violent, but not less distressing, and usually more gloomy forms, of anxiety, depression, and melancholy.

The inhabitants of Apulia, where, as we are told by BAGLIVI[*], there is scarcely any rain in the summer

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[*] "Regio prædicta [Apulia] orientem respicit, ventisque orientalibus, et aquilonaribus obnoxia est; æstate illic imbres rarissimi: qua de re, imo etiam ob viciniam orientis, exurentissimis caloribis solis uritur Apulia; unde populares illi coguntur respirare aerem quasi ab ardenti clibano efflantem.—Huic climatis temperiei analoga est illa incolarum; generaliter enim populares illi sunt adusti temperamenti, nigris capillis, subfusco, quandoque subpallido cutis colore præditi, macilenti, impatientes, iracundi, insomnes, magno mentis acumine præditi, ad discursum veloces, ad operationes promptissimi. Obnoxii potissimum sunt ardentissimis febribus, phrenitidi, pleuritidi, dementiæ, aliisque morbis inflammatoriis; tantaque caloris est illis in regionibus activitas, ut plurimos viderim in summam impatientiam, atque in dementiam actos."—*Dissertat. de Tarantula,* cap. ii. *Operum,* p. 607.—*Vide etiam,* p. 635.

summer season, and where they breathe an air as intensely hot as if it proceeded immediately from the mouth of a furnace, partake of the nature of the climate, are of an adust temperament, have black hair, a sallow and sometimes pale complexion, are lean, impatient, passionate, wakeful, acute, rapid in conversation, and prompt in execution; and are peculiarly liable to the most ardent fevers, phrenzy, pleurisy, madness, and other inflammatory disorders. Such, indeed, he tells us, is the excessive activity of the heat in that climate, that he has often seen people driven into madness by the agony of impatience into which they were hurried by its intolerable violence.

HOFFMAN[1] reckons *intense cold*, and especially when the lower extremities have been imprudently exposed to it, among the remote causes of insanity; and accounts for its agency in the production of this disorder, by means of the spasm which it excites over the whole surface of the body, whether it be universally, or only partially, applied to it; and the consequent determination of the circulating blood, with unusual force, and energy, from the surface, to the internal parts; whence, of course, must arise various disorders in the larger vessels, and those internal parts with which they are connected, and particularly in the lungs, in the heart, and

[1] Med. Rat. Syst. tom. iv. Operum, tom. iii. p. 254. § 21 —et Supplem. Secund. Part. Secund, p. 239, § 13.

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in the brain; producing in the breast, oppression, anxiety, shortness of breath, and sighing; in the heart, trembling and palpitation; and in the head, giddiness, weight, ferocity of the eyes, long watching, and various kinds of insane delirium. This he not only illustrates by the coldness of the extremities, and shivering, which frequently precede hypochondriacal paroxysms; but by the history of a remarkable, and obstinate hypochondriacal disorder, brought on by long exposure, on a journey made in the depth of a severe winter, to intense cold. But notwithstanding the authority of so great a name, as this is, at best, a very remote cause, and has rarely, if ever, been known to have been immediately instrumental in the production of insanity, I have not ventured to introduce it into the list of causes upon a merely hypothetical foundation.

3. As great heat of climate, so *immoderate exercise*[u], and especially in a hot and dry air; by accelerating the motion of the blood, heat-

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[u] BOERHAAVII Aph. § 1093 et § 1103.

TIMÆUS A GULDENKLEE—"refert motum corporis concitatiorem æstivo tempore institutum juvenem maniacum redidisse."—HOFFMAN. *Exercitat Physico-Medic. de Morbis ex Morbosa Sanguinis Circulatione ortis. Oper. Supplement.* Secund. Part. Secund. p. 336. § 16.

"TIMÆUS A GULDENKLEE relates the case of a young man who was rendered maniacal by the exercise of running in hot weather."

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ing the body, exhausting it by profuse perspiration of its more fluid parts, increasing the velocity, and force, of the circulation through the head, and causing an unusual accumulation of blood in the brain; is not only capable of producing immediate insanity, or delirious fevers terminating in insanity; but may likewise give occasion to this disorder by means of the great debility, and various chronical complaints, which may owe their origin to this source.

4. *Profuse evacuations* of every kind, even in the firmest constitutions, soon produce debility; which cannot long exist without giving rise to the permanently lax, infirm, and nervous tones, and their natural offspring, languor, depression, and gloominess. These, if of any considerable standing; whether owing to the continuance of their cause, or to its having induced by its violence, though it may now long since have ceased, such a degree of weakness into the habit as nature cannot easily overcome; and especially, if aided by the concurring influence of such external causes, as have a tendency to excite any of the painful, and dejecting passions, are, by the mere habits of uneasiness, anxiety, and depression, readily convertible into actual, and too often into incurable insanity[*]; which is at first, from the very

[*] Vide BOERHAAVII Aph. § 1108. 2, et VAN SWIETEN Comment.

very nature of its causes, usually pathetic: but which not uncommonly so increases in violence, as it proceeds, as to arrive at length, and sometimes very rapidly, to the most outrageous impetuosity of phrenitic insanity.

Cases of this sort are not unfrequent; and if recent are as easily cured, as when of long date, they are obstinate, and unyielding. I recollect one instance of insanity from this cause, which, at the same time that it illustrates the facility with which it may be removed before time and habit have rendered it inveterate, affords a plain proof of the powerful influence of mere exhaustion, and debility, in generating this disorder. An unhappy mother, in a low station of life, who while poverty obliged her to live on a scanty allowance of poor, and unnourishing diet, had too long given suck to a hearty child, was reduced almost to a state of desperation by the debility which so ill-timed an evacuation had occasioned. From this miserable condition she was restored, in a short time, to health, and serenity, by weaning her child, and using a more plentiful, and nutritious diet, without the aid of any medicine whatever.

Comment.—item BOERH. Aph. § 1125, et VAN SWIET. Comm. —Vide etiam HOFFMANN. Dissert. Medic. de vera Morbi Hypochondriaci Sede, Indole, ac Curatione. Supplem. Secund. Part. Secund. p. 230, § 13.

5. But of all the causes of insanity which operate chiefly by means of the previous production of debility, none are more effectual, or more obstinate, than *excessive venery;* which, at the same time that it acquires accumulated, and almost invincible force by habit, and almost incurably enervates the body, and debilitates the mind, is usually accompanied by other distressing circumstances; by great and often irreparable injury both of fame and fortune; by a privation of the very enjoyment for the sake of which they were sacrificed; by the possession in its stead of the most tormenting, and tantalizing desires, which are for ever disappointed with pain where they sought for gratification; by vain regret for the loss of almost every pleasure, and every comfort, both corporeal and mental, and the aggravating reproaches of a guilty conscience; and to add to its fatal power of gradually debilitating by all these means the faculties of the mind, and subverting their sound, and rational operation, it has a peculiar tendency by nature, while it exhausts the vital powers, and enfeebles the whole animal system, to occasion an increased action of the vessels of the brain, and an unusual determination of blood to that organ, and thus, on many occasions, to give immediate rise to insanity, by its direct action upon it.

Where the tendency of a cause is so obvious, authority can scarcely be wanting to prove the

existence

existence of its effects; if it were, instances might be adduced in great abundance. Authors, indeed, are universally agreed, from GALEN down to those of the present day, about the pernicious influence of this enervating indulgence, and its strong propensity to generate the very worst, and most formidable kinds of insanity. Nor is the injurious power it derives from its immediate operation upon the brain, perhaps, less considerable; and it is certainly more direct, and sudden; than that which it owes to its tendency to produce debility, regret, disappointment, anxiety, and remorse. It has frequently been known to occasion speedy, and even instant insanity. SCHENCKIUS[w] relates a case from JACCHINUS, of phrenitic insanity which was speedily brought on by this cause; and HOFFMAN[x] relates, from FORESTUS and HENRICUS AB HEER, two other cases of a similar nature.

6. A *deficiency of nourishment*, from whatever cause, at the same time that it has the common debilitating agency of profuse evacuations, not only deprives the body of a due supply; which, as it may be abundantly furnished, during the existence of such evacuation, may in some degree di-

[w] Obs. Med. Rar. lib. i. Obs. 3, p. 133.

[x] Med. Rat. Syst. tom. iv. Part iv. cap. viii. § 15. Operum tom. iii. p. 254—et De Mentis Morbis, ex Morbosa Sanguinis Circulatione ortis. Supplem. Secund. Part Secund. p. 334, § 11, et p. 336, § 16.

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minish their bad effects; but weakens, and injures, in a peculiar manner, the stomach and other organs of digestion and chylification, which are the immediate sources, and whose debility seems to be the principal cause, of hypochondriacal melancholy[y], the fruitful parent of almost every species of insanity: nor is it merely of itself a powerful agent in the production both of notional and ideal delusion, by inducing debility in its highest, and worst, degree, and all its tormenting consequences, languor, spasm, pain, dejection, anxiety, and fearful apprehension; but it not uncommonly brings others in its train: since it can seldom fail to be accompanied with a variety of those distressing passions which must naturally originate from extreme poverty, accidental misfortune, cruel usage, or some painful, or perhaps hopeless, bodily disease, which either withhold the means of good and wholesome nourishment, or, if they do not withhold them, render it impossible to use them in a sufficient quantity, or, when they are plentifully taken, so impede digestion, and chylification, as to defraud the body of its due proportion of daily refreshment, and repair.

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[y] Hoffmanni Med. Rat. Syst. tom. iii. § 1, cap. ix. § 21, Oper. tom. i. p. 344. Hoffmanni Dissert. Medic. de præcipuo Studiosorum Morbo, ejusque genuinis Causis. Operum. Supplem. Secund. Part. Secund. p. 243, § 4. Zacut. Lusit. Oper. tom. i. p. 82, Hist. 43.

7. As the phrenitis, small-pox accompanied with delirium, and other delirious fevers, give rise to insanity by their immediate influence upon the brain, *so fevers of whatever kind, which have continued long, have frequently recurred, have terminated with an imperfect crisis, or have not been treated with proper dilution*, are often found to be productive of insanity by means of the infirm tones, debility and obstruction of the stomach and bowels, and other diseases of the natural, and animal functions, which they leave behind them, or give occasion to; and perhaps by injuring the brain itself in some degree, both by the violence of the fever, and by the subsequent debility, so as to render its vessels unusually susceptible of an increase of action, and apt to produce a preternatural accumulation of blood within the cranium.

We are informed by SYDENHAM, that he frequently met with mania which had been the offspring of long continued intermittents, as well of spring tertians, as, which more commonly happened, of autumnal quartans; and that the latter, in particular, was so far from requiring evacuations, of any kind, that the mere administration of the mildest clyster, consisting of nothing more than milk and sugar, even when the patient was in a convalescent state, would immediately renew the disorder[z].

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[z] Oper. Univers. p. 84, 101—103.

Though insanity of this sort seems to be much less frequent now than it was in SYDENHAM'S time; owing, probably, to the very free use of evacuants in those days, and the timid exhibition, or total neglect, of the Peruvian bark; a practice which was reprobated by that sagacious physician, and has now happily given way to a better, and, indeed, almost infallible method of cure; yet insanity from this cause still occurs now and then; and though it is not at present so intolerant of all evacuations as it seems then to have been; and will not only bear, but requires, their prudent and moderate use; yet is it principally to be treated, when its violence is somewhat abated, with nourishing diet, and a plentiful use of the bark.

BONETUS[a] gives the history of a case of phrenitic insanity which had succeeded an acute fever unaccompanied with delirium.

HOFFMAN mentions insanity of every species as frequently occurring after most sorts of acute fevers, and especially if they have been protracted to a great length: and accounts for this circumstance from the dissipation of the animal spirits by the violent, and long continued, febrile heat, and watching; from a defect in their secretion in consequence of the injury done to the fibrous texture of the brain; and, in short, from a di-

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[a] Sepulchret. tom. i. p. 205, Obs. 1.

minution

minution of the tone of the vessels and fibres of the brain, and of the whole animal system[b]. He also relates a case of insanity, succeeding a tertian fever, every paroxysm of which had been accompanied with a slight delirium[c]: and considers hypochondriacal melancholy as no uncommon consequence of intermittents; but, unfortunately, attributes this circumstance to their being cured by the Peruvian bark,—"according to SYDENHAM'S method without the intervention of any purging medicine to carry off the remains of the remedy, as well as of the disease[d]."

8. And of the long, and enervating train of evils arising from indigestion, obstruction, and defective tones of every kind, all, or most, are, sooner or later, and in a greater or less degree in proportion to the original firmness, or delicacy, of the natural constitution, and the degree of the injuring cause, the necessary and inevitable consequences of an *inactive and sedentary life.* It is no wonder, therefore, that insanity of some species, or other, should often close the painful, and gloomy procession.

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[b] Med. Rat. Syst. tom. iv. Part iv. cap. viii. § 18, Oper. tom. iii. p. 254.

[c] Consult. et Respons. Med. Caut. 1, § 1, Cas. xxxvi. Oper. tom. iv. p. 62.

[d] De vera Morbi Hypochondriaci Sede, Indole, ac Curatione, § 14, Oper. Supplem. Secund. Part. Secund. p. 231.

How all these afflicting evils are the natural, and most of them the necessary, offspring, of of an inactive and sedentary life, will but too plainly appear, if we consider the known effects of exercise, in its various degrees, upon the human body.

As some degree of motion, and exercise, seems almost essential to the very being of the body, as an active, and animated machine; so a considerable degree of them, greater or less in different ages, sexes, and constitutions, is absolutely requisite to its well-being.

In early youth, while the texture of the fibres is yet tender, their strength infirm, and the nervous system delicately irritable, exercise should be active, and lively, but never violent; and, though not incessant, it should be interrupted with but short intervals, and those rarely of perfect inaction; excepting during the necessary refreshment of sleep, when it may be protracted to a greater length in the tender ages of infancy, and youth, than at any other period of life, excepting extreme old age.

In the prime of life, when the body is arrived at its perfect vigour, and maturity; when the texture of the fibres is become more compact, and their strength robust; when the nervous system, though sufficiently animated, and susceptible, is not too delicately irritable; exercise should be more vigorous; and though it will admit

mit of longer interruptions of a less active state, we should carefully guard against very long, or very frequent intermissions of moderate, and continued motion; and against all intemperate indulgence of repose in bed, whether sleeping, or waking.

As old age advances, and the fibres become hard, inflexible, and inactive; the nervous system less irritable; and the powers of life are approaching to decay; exercise should be less vigorous, less lively, and less persevering; and should be interrupted with very frequent, but not with very long intervals of rest; and sleep, if happily a ready visitant, should not be treated with neglect, but indulged so long as shall be found conducive to refreshment; and where sleep is less liberal of its favours, the repose of bed, while it continues easy and refreshing, should not be too hastily quitted.

Females, being of a more lax, infirm, and irritable habit than the other sex, require more gentle, and less fatiguing exercise; as do also men of delicate, enervated, and irritable constitutions, than men of robust fibres, and an unenfeebled nervous system. On the other hand, men of strong and vigorous constitutions receive less injury from temporary interruptions of exercise, than the delicate and infirm.

The general effect of exercise of all degrees, and upon all constitutions, is immediately to quicken,

quicken, and invigorate the circulation. This it does by means of the action of the muscles, which, when in a state of contraction, not only press upon the larger neighbouring veins, and variously squeeze and agitate them by the motions of the body and limbs, but force out the blood diffused through their own substance into the veins going from them; which is again supplied by the arteries during their relaxation, and again forced into the larger veins by the repetition of their contraction. The blood being, by these means, propelled more rapidly through the venous system, is returned in greater quantity than in a state of rest, in a given time, to the heart; whose right auricle, and ventricle, being filled more speedily, and more distended, contract with greater vigour, and at shorter intervals; produce the same change in the action of the left auricle and ventricle; whence the blood is sent with greater frequency, celerity, and force, through the large arteries; and the action of the smaller ones, by whatever power the circulation is carried through them, is accelerated, in proportion as a larger than ordinary supply, demanding a quicker passage, stimulates them more urgently to action. It is also a general effect of exercise, to promote, by this increase of the circulation, the generation of animal heat; to keep the whole system of vessels active and permeable; to quicken respiration; and

and to increase the excretion of perspirable matter from the surface of the lungs, and of the skin.

Exercise may be considered as of three degrees, —violent,—moderate,—and defective.

Violent exercise may be injurious in two ways; either by an excess in degree, or by an excess in duration.

Violent exercise of every kind has a tendency to injure health. It occasions too much labour of the mucles, of the heart, and of the whole vascular system; too great exertions, and waste of power, of the nervous system; and too violent attrition, and abrasion, and too great rigidity of the solids; it induces too firm a texture of the blood; dissipates its fluid parts by immoderate perspiration; tends to generate the rigid, athletic, and inflammatory tones; and, when excessive, disturbs all the secretions, and excretions; impedes digestion, and nourishment; excites burning heat; produces fevers, inflammations, quinsies, defluctions, pleurisies, hemorrhages, consumptions, incurable debility from over-exertion, and a variety of other considerable, and dangerous disorders.

Exercise which is excessive in degree can consist only in momentary, or at most in no very long continued exertions; as in violent efforts of strength, or speed, in lifting, carrying, wrestling, cricket-playing, jumping, running, or the like; which tend to occasion ruptures, hemorrhages,

hages, fevers, inflammations, and other immediate, and violent disorders; as well as greatly to disturb all the natural functions, and give rise to such changes, as sometimes lay the foundation of very troublesome chronic diseases.

The excessive in duration has less violent effects in proportion as it recedes from the excessive in degree. It tends to produce more gradual changes in the system, and rather to injure by exhausting, and wearing out, the body, inducing too early rigidity, and the other symptoms of premature old age, than by causing those sudden, and alarming effects, which are the common consequences of such exercise as is pursued with an excess of eagerness, and impetuosity, and greatly errs in degree.

Moderate exercise is, in its effect upon the body, more benign and salutary, and tends as powerfully to promote health, and prolong life, as violent exercise tends to injure the one, and to shorten the other. It produces a due degree of celerity, and vigour, of circulation; keeps the whole vascular system alive and permeable, without exciting too great impetuosity of action, or pushing any of the fluids into vessels which ought not to receive them; generates temperate heat; promotes the whole operation of digestion—the effusion of the gastric fluid into the stomach—the action of the stomach and surrounding parts upon the aliment—the propulsion of the aliment

into

into the intestines—the plentiful efflux of bile, and of the pancreatic and intestinal fluids—the ready performance of the peristaltic motion—the absorption of chyle by the lacteals—and the speedy expulsion, by stool, of the feculent, and excrementitious matter, which, by delay, might contaminate the chyle with less pure, and less nourishing particles. The blood, thus impregnated with recent, and wholesome chyle, is carried by moderate exercise, in a gentle, steady, and unceasing current, as well through the whole system of capillary, as through the larger arteries; and not only the particles adapted to the purpose of each secretion are regularly, and uniformly conveyed to the organs, and vessels, destined for the offices of secreting, and collecting them into their proper receptacles; but such as, having performed their parts in the animal economy, are now become useless, or injurious, and recrementitious, are readily, and speedily, carried off, in the form of urine by the kidneys, and in that of sensible, and insensible perspiration, and sensible phlogiston, by the lungs, and by the whole surface of the body; and every part of the body is at the same time plentifully nourished; the incessant waste of that on which the nervous power depends is perpetually supplied; and the firm, healthful, and vigorous tones, are generated.—In a word, every vital, natural, and animal action, is performed with facility, and effect; and the man enjoys,

joys, so far as bodily health can secure enjoyjoyment,—if he be constitutionally healthful, and has entered upon a course of exercise before his health has by any means been essentially injured, and if to moderate exercise be joined regularity, and temperance,—together with good and perfect health, a proportional degree of perfection of sensation, and voluntary motion, of the mental powers of bodily comfort, and of intellectual serenity.

But all these invaluable blessings are thrown away by the indolent, and inactive, whose unhappy, and often inexcusable, defect of exercise, is the source of not less pernicious, though, for the most part, less sudden, and alarming evils, than its violence, and excess.

Defect of exercise, by withholding the compressing, agitating, and propelling, action of the muscles, both on capillary, and on the large vessels, returns the blood less copiously to the heart, stimulates that organ less forcibly to contraction, renders it incapable of projecting the blood with vigour, and in plenty, to the capillary vessels, which, while the heart thus acts with too little power to ensure a passage into their beginning ramifications, and to urge them into contractions, oppose to its enfeebled efforts the blood already stagnating in them, and increasing the resistance to its influence, for want of the propelling aid of muscular action. The force, and extent, of the circulation, being thus diminished, the

fluids

fluids stagnate, and degenerate, the blood becomes thick, black, and glutinous, or, in great degrees of degeneracy, thin, pale, and watry, and in both cases less fit for secretion, the capillary vessels become less permeable, and some perhaps are obliterated; digestion languishes; nourishment is ill prepared, and ill applied; the body is emaciated, or is bloated with unhealthy corpulency, or deluged, and swollen, with watry fluids; the secretions, and excretions, languish, or are disturbed; heat is diminished; the tones become lax, infirm, and nervous; and the man is sunk in sloth and indolence, depressed with feebleness, and languor, teazed with exquisite irritability, or tormented with a variety of gouty, rheumatic, spasmodic, and other pains. They who have long indulged in inaction, are sometimes so weakened by it, as scarcely to be capable of making use of a degree of exercise, which, had it never been intermitted, would have preserved that health, to the regaining of which it can now, perhaps, either never be applied, or to which, if fortunately it can be applied, there is little room to hope that it can ever restore its original firmness, and perfection. How commonly do we see persons who have long been habituated to a sedentary life, greatly disordered even by moderate exercise. The heart, weakened and rendered more irritable, with the rest of the body, is incapable of sustaining the

unusual

unusual afflux of blood occasioned by a little extraordinary muscular motion, and is perpetually irritated into convulsive, but too feeble, and ineffectual contractions; the lungs, unaccustomed to the passage of so copious a stream of blood through them, expand with labour, and transmit it with difficulty. Such persons, therefore, on using exercise, and especially that of walking, breathe short, and with much difficulty, and sometimes with a sense of oppression little short of suffocation; their hearts palpitate; and they are often unable to proceed without immediate danger of fainting. These painful effects of exercise are so much the greater, if to the debilitating influence of inaction, has been united a naturally delicate constitution, or some such disorder as has a direct tendency to produce debility, or to obstruct the regular action of the heart, or to prevent the free passage of the blood through the lungs.

But no where are the injurious consequences of a defect of exercise more considerable, than in that part of the animal economy, which, being destined to the office of preparing the daily refreshment, and nourishment, of the body, is the very fountain of life, health, and vigour; and cannot be disordered but the whole machine must suffer. For indigestion, flatulency, acidity, and an endless variety of other disorders of the first passages, and of the parts connected with them,

are the natural offspring of inaction; and while they add to the numerous progeny of ills of which it is the parent, they nourish, and strengthen, most of the other complaints which are derived from the same origin.

The means by which a defect of exercise impedes the process of digestion are as various as those by which moderate motion promotes it; and are, indeed, exactly the reverse. It renders the action of the stomach, and intestines, weak and languid;—it debases the qualities of the gastric, pancreatic, and intestinal fluids, and of the bile;—and it obstructs the affusion, and due mixture with our aliment, of these powerful, and necessary agents, in its digestion, and assimilation.

Defect of exercise weakens the stomach, and intestines, by preventing the gentle concussion, and agitation, which they would receive—from the moderate motion of the body in general; from the increased action in particular of the muscles of the belly, and of those concerned in respiration; and from the stronger pulsation of the arteries through the whole vascular system, which while it would invigorate their tone by invigorating the whole animal machine, would act, within the cavity of the abdomen, as a stimulating cause immediately upon the bowels themselves. It also weakens the stomach, and intestines, by variously injuring the proper nourishment, lessening the excitement, lowering the nervous

 power,

power, and impairing the tones, of the whole body. In a word, a defect of exercise weakens the action of all the instruments of digestion, by diminishing the agitation, and stimulus, of extrinsic causes, and at the same time enfeebling their healthful tones, and lessening their inherent powers.

By the same means an indolent, and sedentary life, obstructs the affusion, and debases the qualities, of the gastric and pancreatic juices, of the bile, and of the fluid of the intestines. Inaction diminishes all the secretions, and of course prevents a sufficient supply of these invaluable fluids, so indispensably requisite to good digestion; and while it hinders this important process by defrauding it of such powerful agents, and by diminishing the tones of the stomach, and intestines, and thus injures the chyle in its first preparation; the enfeebled tone of the vascular system renders it incapable of correcting the errors of the first concoction, of elaborating a crude chyle into good and healthful blood, or of separating from it, by secretion, fluids perfect in their kind.

The natural and unavoidable consequences of these primary deviations of the animal economy arising from a sedentary life,—of the weakened tone of the instruments of digestion on the one hand; and of the scanty supply, and degenerate condition, of the fluids concerned in this important process, on the other;—are, that the aliment, remaining

long

long in the stomach, passing slowly through the cavity of the intestines, and being deprived, in a great measure, of the necessary aid of such powerful solvents, and correctors, will undergo, in proportion to the deficiency, such spontaneous changes as it would, in the same degree of warmth, moisture, and confinement, out of the body; and, becoming acid, rancid, or putrid, but particularly acid, in a greater or less degree according to the nature of the aliment and the degree of debility, will, while it supplies the system with a less perfect, and less wholesome chyle, produce by its flatulency, and acrimony, frequent eructations, of various kinds, loss of appetite, nausea, unnatural cravings, sharp pains, and sometimes enormous distentions of the stomach and intestines, which will occasionally find a little relief by the evacuation of wind, or the termination of a great degree of costiveness, at uncertain intervals, in spontaneous purging; or be prolonged, and aggravated, by a costiveness so obstinate, and so total an incapacity of these organs to evacuate the offensive matter, as rarely to admit even of that temporary relief. In this situation the evil increases; the confined matter will become more acrimonious, will generate unceasing supplies of flatus which can neither be expelled, nor subdued, and together with all the other enfeebling and painful effects of a sedentary life, the distressing symptoms of

indigestion will receive, daily, accumulated, and reciprocal increase, as long at least as the inaction to which they owe their origin continues: this disordered state of the bowels increasing the weakness of digestion, the increased weakness of digestion rendering the chyle still more crude, the greater crudity of the chyle producing less nutritious blood, less nutritious blood adding to the weakness of the tones, and the growing weakness of the tones yet farther debasing the fluids secreted, and both directly, and indirectly, rendering the digestion less perfect, and still multiplying, and aggravating, all its painful, contaminating, and debilitating consequences.

Nor does the mischief end here. These, though sufficiently grievous, are not the only evils which these and the neighbouring parts experience, from the want of an uninterrupted series of gentle exercise, and agitation. Such is the nature, and condition, of that part of the vascular system which is distributed through the several organs concerned in the great business of digestion, and returns the blood from the intestines, spleen, pancreas, and omentum, to the liver, that being little assisted by any immediate muscular action in these soft parts themselves, of which the intestines alone seem to possess any, the passage of the blood through them, its conveyance to the vena portarum, and distribution

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to every conceivable point of so large a substance, for the secretion of the bile, by veins only, which, whatever power of action they may possess themselves, can receive no aid from the action of the heart, are at best but slow, and depend, in a great measure, even for that slow progression, on the action of respiration, the various successions, and agitations, of the contents of the belly, and the perpetual employment of the abdominal muscles, during motion, and exercise. This naturally slow and languid progression must, therefore, in a long course of inaction, almost cease; and the blood which will continue to be sent in as large, or nearly as large a quantity, as usual, to these parts, by the heart, stagnating, and accumulating, will not only increase the mischiefs already mentioned, but conspire with them to produce every kind of obstruction, and every disorder arising from this cause, of which they are susceptible; as indurations, and enlargements, of the mesenteric glands, a scirrhous state of the pancreas, spleen, omentum, and liver, stones in the gall-bladder and kidneys, irritation, heat, pain, inflammation, gangrenes, and abscesses, in the stomach, intestines, liver, and other surrounding parts liable to be affected by this accumulation of blood in the veins connected with the vena portarum: and will at the same time occasion other disorders which are the more immediate, and peculiar, effects of such accumulation,

lation, as the piles, morbus niger[e] of HIPPOCRATES, and all the troublesome, dangerous, and sometimes fatal complaints, which may arise from the distention, or rupture, of the veins within the cavity of the belly.

Flatulency, indigestion, and acidity, the first signs of injury in the stomach and intestines, are essential symptoms of the hypochondriacal disease; which, when it rises to any very high degree, is so commonly accompanied with symptoms of insanity, that one of its species has generally been known by the denomination of *hypochondriacal melancholy*.

If the damp, impure, and stagnating air, of woods and marshes, or of any place in a low and moist situation, as is asserted by BOERHAAVE[f], and his commentator[g]; if noxious, and bituminous

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[e] See a description of this disorder, by HIPPOCRATES, or whoever was the author, in the treatise De Morbis, inserted among his works; book the second.—HIPPOCR. Oper. p. 486. 50.—See also above, p. 16, note (19).—Also, "A Letter from Dr. TISSOT to Dr. ZIMMERMAN, on the Morbus Niger," which contains some cases of this disorder.

[f] "Aer stagnans, palustris, umbrosus.—*Aph.* § 1108.

[g] "Praeterea plurima signa § 1094 recensita, quae atrabiliariam sanguinis cacochymiam denotant, observantur in illis hominibus, qui paludosa et depressa loca incolunt. Color enim pallidus, flavescens, maculae in cute, torpor ad motus, moestitia, &c. satis communia sunt talibus, uti in integris militum cohortibus observatur, qui antea sanissimi coguntur in similibus

nous vapours of this sort, and mineral exhalations from neighbouring mines, which LORRY[h] imagines may be one cause why nervous melancholy is so peculiarly familiar in Britain; or if air impregnated with any other kind of effluvia, as that of populous cities, contaminated, and rendered less fit for the purposes of respiration, and the well-being of animal life, by the breath, and other unwholesome effluvia of men, and brutes, by putrefaction, fire, and an immense variety of other noxious vapours, and vitiating causes; —if these, and such like, conditions of the air, have a tendency to produce insanity, they must operate, like many of the other causes enumerated under this general division, by injuring the

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bus locis stationem figere."—VAN SWIETEN *Comment.* in § 1108, tom. iii. p. 505.

"Moreover many of the appearances enumerated at § 1094, which point out an atrabilious degeneracy of the blood, are observable in such persons as live in low marshy situations; in whom a pale sallow complexion, blotches in the skin, indisposition to motion, dejection, and the like, are no uncommon symptoms; as has been observed in whole regiments of soldiers who were in perfect health when first stationed in such places."

[h] "Minerarum vicinia, halitus e paludibus noxiis bituminosis, dum aerem inficiunt, melancholiæ favent, quod forsan una est e causis cur sua Britannis competat melancholia nervea."—*De Melancholia*, tom. i. p. 86.

"The neighbourhood of mines, and the noxious bituminous vapours of marshes, contaminate the air, and favour the production of melancholy; which, perhaps, is one cause why nervous melancholy is so peculiar to the inhabitants of Britain."

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vital functions, gradually debilitating the whole system, inducing the lax, infirm, and nervous tones, and rendering us liable to all their numerous ill consequences; among which the hypochondriac melancholy of the ancients, and various other kinds of insanity, hold no inconsiderable rank.

Perhaps *intense cold*, if it ever contributes to the production of insanity, does it, for the most part, in the same remote way, by first inducing debility; and rarely, if ever, by any sudden, and immediate influence of the spasm excited in the vessels on the surface of the body, and the consequent increased determination of the blood to the brain.

Cold produces various effects upon the cutaneous, and other superficial vessels, according to the degree of its intensity, and the state of the body on which it acts. Even when it is not very intense, it will excite a general spasm in the capillary arteries on the surface of the body, in people of lax, infirm, and nervous tones, and unless counteracted by exercise, even in those of firm, vigorous and healthful tones; but if the bodily warmth be kept up by exercise, persons in health, and vigour, have the circulation in the small arteries rather stimulated into accelerated action, while that of the veins, is perhaps, diminished, as seems probable from the swelling of the face and extremities, and their florid, and sometimes even livid

livid appearance, by a moderately cold, if at the same time it be a dry air. In like manner intense cold, at first increases the action of the capillary arteries in persons of firm, healthful, and vigorous tones; but when exceedingly intense, and long endured, diminishes their irritability, produces torpidity, stagnation, spasm, insensibility, determination to the internal parts, and among others to the head; and both by its immediate diminution of irritability, and by the accumulation of blood in the brain, brings on drowsiness, a total abolition of nervous power, and of animal life. It appears, therefore, exceedingly probable that cold, under certain circumstances, debilitates, by diminishing the nervous power on the surface of the body,—that is, within the sphere of its immediate influence,—and abating irritability; and by exciting a spasm in the capillary arteries, which, while it tends to debilitate the vessels themselves thus spasmodically affected,—spasm naturally producing debility, and debility spasm,—induces general debility, by determining the blood too copiously to the brain, and disturbing the functions of the very organ from whose regular procedure the whole body derives its regular supplies of nervous power.

Debility thus produced, if the cause be accidental, and either not excessively intense, or its action of no long continuance, may be only transient, and leave no lasting traces; but if it owe

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its existence to cold which is permanent, or which frequently recurs, and is of an intense degree, it may give rise to the other causes of debility, or aggravate the effects of such as already exist, and perhaps lay a lasting foundation for depression of spirits, anxiety, distress, and insanity; as seems to have been the case of the person, the history of whose curious and obstinate disorder, originating from the violent action of intense cold, has already been quoted from HOFFMAN[1]. His nervous system had long been injured by a variety of causes: he had lived freely in his youth; had sometimes indulged in drinking to excess; and for several years before he suffered so severely from exposure to cold, had applied so closely to a multiplicity of important business, which had obliged him to spend almost his whole time in sitting, and thinking, that his health had begun to decline, though not so much as to alarm him with any serious complaints. In this state of incipient debility, he was exposed to intense cold; of how long continuance is not said, but its first effects were violent, and alarming, and gave a shock to his constitution, which he never recovered. Insanity, indeed, was not the immediate consequence: but hypochondriacal symptoms soon made their appearance; and,

[1] Dissertat. Medic. sistens Affectum Spasmodico-Hypochondriacum inveteratum. Oper. Supplem. Secund. Part. Secund. p. 235.

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by a continuation of his bodily inactivity, and mental application, aided by an injudicious, and debilitating medical treatment, they were so much increased, in the course of about three years after his severe suffering from cold, that, in the night, his sleep became extremely unquiet, and was disturbed with anxious and terrifying dreams; which were succeeded in the day-time, by a degree of grief, and melancholy, which he was unable to overcome, or to resist.

In short, if there are any other agents, not here enumerated, which have a considerable propensity to weaken the tones, and induce languor, torpor, and debility, all such instruments of gradual change in the body may very properly be reckoned among the remote causes of insanity.

IV. *Causes seated in, or primarily affecting, some particular parts, and giving rise to Insanity, either by acting speedily upon the Brain, as by Sympathy, or Translation; or by operating more slowly, and producing such a gradual change in the constitution as disposes to Insanity.*

1. There appears not only to be a general sympathy between every irritable, and sensible part of the body, by means of sensation: but also certain less general; though not less important, or less conspicuous, sympathies, which have some

some only a partial, and limited, and some a very extensive, and almost unbounded influence over the whole animal system; often, and perhaps most commonly, by the mediation of irritability alone, but not unfrequently by the united operation of both irritability, and sensation.

Sympathies of the *former* kind are conspicuous in all cases of lively sensation, or violent pain: the very extensive, and almost universal diffusion of whose influence over every sensible part of the body, and perhaps, every fibre capable of muscular contraction, is either immediate, and involuntary; as in the general spasm of the capillary arteries, and of the muscular fibres, on the application of cold to a particular part, or the contrary, and antispasmodic effects, of the partial application of warmth, or, in the universal spasm, paleness, and excessive coldness in some cases, and the great heat, flushing, and profuse perspiration in others, of violent pain;—or, though scarcely resistible, is indirect, and by the voluntary, or rather semivoluntary, mediation, of the mind; as in groaning, holding of the breath, violently contracting all the voluntary muscles, biting the lips, and the like general effects of pain; or it is the natural result of these effects, and of the structure and functions of the parts, such as the bursting of blood-vessels, hernial ruptures, weariness, debility, and sometimes almost paralytic state of the muscles, involuntary

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evacuation of urine, and stool, and in some measure, perhaps, increase of heat, and profuse sensible perspiration.

Of the *latter* kind is the sympathy which seems to subsist between every internal organ of the human body, and almost every other part of that curious, and wonderful, animated machine. This may, possibly, in some instances, be, in part, accounted for, from the vicinity, connexion, and mechanical structure, of the parts concerned; as in the mutual sympathy between the bladder and the rectum; between the bladder and the glans penis, when a stone, or ulcer, in the former, excites a sense of pain in the latter; between the gall bladder and other parts contained within the cavity of the belly, and the stomach; between the neighbouring parts of the same membrane,—inflammation spreading more readily along the same continued and uniform expansion, than to parts more distant, less connected, or of a dissimilar structure; between the eyes and the nose,—a strong light suddenly falling upon the former often giving occasion to sneezing by exciting a sympathetic sensation in the latter; between the schneiderian membrane of the nose, and its continuation in the throat, windpipe, and lungs,—a cold which begins with a running in the head, not uncommonly terminating in a cough, and a defluxion upon the breast; between the two eyes,—an

inflam-

inflammation, or other disease of one, being often succeeded by a like disease of the other; between the same parts of both eyes,—producing an uniform motion of their muscles, and pupils; and between different parts of the same eye, as between the pupil and retina,—the former contracting, or dilating, as the latter is variously affected by a stronger, or a weaker light. But even in these instances, since other parts of a similar structure, equal vicinity, and as intimate connexion, are not in like manner affected, the sympathy seems chiefly, and is, probably, in many, if not in most instances, solely, to be referred to certain laws of the animal economy, which act merely by the nervous power, and of which we can better prove the existence, than determine the specific nature, or demonstrate the mode of operation.

This sympathy is no where more remarkable, or extensive, than between the parts contained within the cavity of the belly, and the other parts of the human body; and of these the stomach, the whole alimentary canal, and the womb, have, in the frequency, variety, and magnitude, of their sympathetic influence, the natural consequence of their high, and important offices, greatly the pre-eminence: the two former, as being principally, and essentially, concerned in the daily preservation of life, and the distribution of health and vigour to the body of every individual; and the latter,

latter, as being no less necessary to the multiplication of the species, and having no inconsiderable concern in the well-being, and even in the life, of the mother, and her infant offspring, by its great and wonderful influence over several parts of the female economy, by the deviations of which from the regular performance of their proper offices, fruitfulness may be prevented; or the infant, puny from its birth, or blasted by an unwholesome nourishment, may wither and decay; or the mother's health may be materially injured, or totally destroyed.

While the stomach receives the food, in order to dissolve, and concoct it, to transmit it thus prepared to the intestines, where it is to be farther changed, and fitted for reception into the lacteals, from thence to be conveyed into the blood, assimilated into its nature, distributed by the circulation to every part of the body, and converted, by nutrition, into its very subtance; it communicates, by a wise, and wonderful contrivance of the benevolent Author of Nature, instantly and by sympathy, that refreshment, and vigour, which might often arrive too late for the repair, and preservation, of the exhausted machine, were it delayed till the aliment had gone through the tedious operations of these long assimilating processes. And it is, indeed, probable, that in the whole course of the intestinal tube, when it is in a sound and healthful state, and digestion

digestion and chylification proceed easily, and well, such muscular and vascular tones are excited, as tend to produce ease and vigour by exciting similar tones through the whole muscular and vascular systems of the animal. For ease, and vigour, and a due performance of the natural functions, seem to be reciprocal. When, therefore, the tone of these organs is much diminished, or when they are in any other respect greatly disordered, as in hypochondriacal languor, and indigestion, in fevers, in inflammations of the bowels, or the like, the body neither experiences immediate nor considerable refreshment, on the reception of aliment into the stomach, which on many occasions it even instantly rejects; nor is afterwards properly nourished, and invigorated, by a well digested, wholesome, and nutritious chyle: but remains languid, and relaxed, and, instead of ease and vigour, is harassed with pain, and depressed with weariness and debility; and these disagreeable feelings are greatly aggravated, if the organs of digestion are irritated by acrimonious, overloaded and oppressed by too heavy and indigestible, or too copious, or distended by too flatulent aliment: not to add that whatever irritates, overloads, or distends the stomach and intestines, and impedes digestion, increases the weakness of these organs, and of course aggravates the debility, and uneasiness of the whole frame, to which

which their weakness was but too much disposed to give rise without the aid of any such additional cause. But how the lax, infirm, and nervous tones, painful sensations, and bodily disease, especially of what is called the nervous kind, are naturally connected with peevishness, melancholy, horror, and despair, has already, in some degree, been explained, and will receive still farther illustration from what is to follow.

It is from this sympathy between the stomach and intestines, in particular—to say nothing at present of the other contents of the abdomen—and the rest of the body, that the hypochondriacal disorder, so troublesome to studious, and sedentary persons, derives many of its worst, and most alarming symptoms. From this source proceeds that sort of insanity, which, from the apparent seat of the complaint, and the concomitant symptoms, has usually been denominated *hypochondriacal melancholy*. And though the hysterical disease has, perhaps, a different origin, and its essential symptoms are very different, it is often accompanied with the like disorder of the first passages; and besides its tendency to occasion delirium during the paroxysms, is likewise disposed to give rise to it in the intervals; as well by the secondary action of this local relaxation,—in injuring the tones by injuring digestion and nourishment;—as by its direct sympathetic operation upon the muscular, vascular, and

and nervous systems, and the immediate effects thence resulting upon the tones, and feelings, of the body.

As the pylorus, pancreas, mesentery and mesenteric glands, liver, spleen, hemorrhoidal vessels, kidneys, omentum, peritoneum, and other parts adjoining, have all a nearer or more remote connexion with the immediate organs of digestion, and chylification, it is reasonable to suppose, of some of them at least, that, besides a tendency to promote the production of insanity, when diseased, by the immediate sympathy which subsists between them and the rest of the system, they may, in proportion to the closeness, and intimacy, of their connexion with those organs, have that tendency increased,—in consequence of the obstruction, which by the imperfect performance of their proper functions, they may be capable of giving to those of the stomach, and intestines; and of the power they may thus possess of as much weakening their tone, and impeding digestion, in their diseased state, as they are qualified to promote the one, and invigorate the other, when themselves are sound, and vigorous.

It has been seen, in the enumeration of the appearances on dissection, that all these parts have been found diseased in one case or another; and many instances, of a similar kind, might easily be adduced from practical writers, in which some, or other of them, have appeared to act as excit-

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ing causes of insanity; and which, at least, render it certain that a disordered state of all, or most of these parts, has occasionally accompanied insanity, whatever share it may have had in its production. Nor will it seem wonderful that such great, and apparently remote effects, should be attributed to the irritability of these very sensible parts, and their sympathy with the rest of the body, when it is considered that not only delirium, but even death itself has frequently been the speedy, and sometimes almost the immediate consequence of excessive pain from a violent blow on the stomach, belly, and some other parts of exquisite feeling; or from any other external violence, or from internal disease, in these parts; when, upon dissection after death, it has sometimes happened, that not the smallest, and often that no apparently very material, or adequate injury, has been found. Of facts of this sort I do not recollect to have seen many very striking, or uncommon examples myself; but have been told of such by very capable, and credible, eye-witnesses; and have not unfrequently met with them in medical books. BOERHAAVE mentions several instances of pain, delirium, and death, speedily succeeding accidents; of violent delirium and sudden death, occasioned by painful disorders; and of other surprising and instantaneous consequences of exquisite pain, in these parts; in which these great, and violent effects, can only be attributed

to the wonderful, but obscure, and inexplicable, influence of sympathy: for they can scarcely be said to be accounted for by supposing, since we can only suppose, that the vibrations excited in the nerves, and brain, on these occasions, are so excessive, and predominating, as to overcome, and suppress, all other nervous vibrations; and of course those vibrations on whose continuance the vital functions depend; and only to expire themselves with these vibrations, which, having destroyed, they could no longer exist.—A wound in the belly with a knife, which has neither injured the intestines, nor blood-vessels, has been known to occasion speedy death, merely by dividing certain nerves of the mesentery; as we are assured by BOERHAAVE[i], on the authority of the celebrated RUYSCH, who had seen frequent disasters of this kind among the Dutch seamen. The wound was always succeeded by intolerable pain, which was soon followed by a hiccup, vomiting, delirium, and death.—A countryman[k], who followed the employment of a labourer, fatigued by the exertions of the day, after eating and drinking at supper as usual, went to bed weary but apparently in perfect health. In the middle of the night he was waked by a violent pain in his bowels, which soon becoming ex-

[i] De Morbis Nervorum, tom. ii. p. 424.
[k] Id. ib. p. 426.

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cessive, he died quite delirious in less than four hours. BOERHAAVE[l] himself was once waked in the middle of the night, by a similar pain, in the same part, which was so exquisite, and intolerable, that he was persuaded it would have put an end to his life in a few minutes, had he not been instantly freed from it, by a medicine, which happened fortunately to be at hand. And I have known several cases of the same nature; in some of which a sudden pain of the stomach, intestines, or biliary ducts, has by its excessive violence threatened speedy death, which has happily been prevented by the timely aid of medicine; and in others, a sudden cramp in the stomach, or something like it, has come on during sleep, and has terminated in death before proper assistance could arrive.—An incarcerated hernia has, in like manner, been known to occasion excruciating pain, delirium, and death, in a short time; and, on dissection, the intestine has been found strangulated, indeed, but not otherwise injured[m]. And there are numberless instances of convulsions, delirium, and death, in painful disorders, in which the pain seems to have been, if not the sole, yet a principal actor, in the fatal event which ensued.

2. As the parts contained within the belly have

[l] De Morbis Nervorum, tom. ii. p. 426.

[m] BOERHAAVE De Morbis Nervorum, tom. ii. p. 426.

a considerable sympathetic connexion with each other, and every one in particular with the stomach and intestines; which seem to constitute a kind of centre of sympathy, as the heart does of circulation; so they have all a general sympathetic connexion with the rest of the body; which being carried on by means of the nerves, and brain, whose well-being, with that of the whole machinery, depends in a great degree upon the well-being of the stomach, and intestines, by which they are supplied with daily nourishment, it is no wonder that the former should suffer when the latter are out of order, and that insanity, among a vast variety of nervous, and other, complaints, should sometimes be the offspring of a disordered state of the alimentary canal.

The stomach and intestines seem to possess this sympathy with the other parts of the body, as for obvious reasons might be expected, and as has already been accounted for, in the most eminent degree; and when much disordered, and debilitated, are no inconsiderable sources of insanity. Whatever therefore tends to diminish the tones of these important organs; or, taking its rise from their diseased state, tends to increase the debility which gave occasion to it; may with great propriety be enumerated among the causes of insanity, an effect which so often flows from such a state.

Of this sort, to mention no others, are—*hard*

and

and indigestible aliment,—the immoderate use of warm diluting liquors,—intemperance in diet of any kind,—viscid phlegm,—and worms.

All these causes seem to act, in the production of insanity, partly by generating an unwholesome chyle, and bringing on a diseased state of the blood;—for such a state of that important, and necessary fluid, may doubtless produce some effect of this kind, by diminishing the general health of the body, bringing on, or aggravating, nervous symptoms, and exciting a variety of uneasy sensations;—and partly, and perhaps principally, by debilitating the stomach and intestines, and weakening their tones. Hence it is that acidity, and flatulency, in the first passages, are so universally reckoned by the ancients among the principal, and most conspicuous symptoms, of hypochondriacal melancholy; the former, indeed, appears to have been no other than the atrabilis of GALEN, which, he says,—"when thrown up from the stomach by vomiting, has an acid taste, and smell[a]."

Hard and indigestible aliment lies long in a weak stomach, and is not easily overcome, or evacuated, by the strongest; if, therefore, it be frequently taken into the stomach already either habitually infirm, or rendered so by some

[a] "Vomentibus ipsam, et olfacientibus, videtur acida."—*De Locis Affectis.* lib. iii. cap. iii. LACUNÆ *Epitom.* p. 741, l. 20.

recent disease; or if it be customarily taken in too large a quantity into a sound and healthful one; it loads the first passages; creates flatulency, and acidity; weakens the tone of the stomach and intestines when it found it strong, and still farther debilitates it when it found it weak,—by distention; by frustrating their perpetual efforts to subdue, and convert into wholesome chyle, the insoluble mass that oppresses them; and by defrauding the whole body, and of consequence the alimentary canal itself, of its due portion of good, and proper, nourishment. These effects are daily aggravated, and, as the debility, so the oppressive load, is increased, in a growing proportion, so long as the same kinds of diet is continued: and especially, if to a diet of difficult digestion, be added a want of sufficient bodily exercise, intemperance in the use of vinous and spirituous liquors, grief, anxiety, close application of mind to study or business, or other debilitating causes which have an immediate tendency to injure the tone, and obstruct the operations, of the organs concerned in the business of digestion.

Among aliments that are hard, and of difficult digestion, may be enumerated all salted, dried, and rancid meats; the flesh of all animals which is become tough with age, or labour; all the membranous, tendinous, and cartilaginous parts of animals; fat, oil, and butter, of all sorts, and

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in every form; cheese of every denomination, and quality, but in particular, such as is poor and horny, or, if rich, is new, heavy, and glutinous; pease, beans, and every kind of pulse; all unfermented farinaceous substances, pastry of all sorts, and even bread while quite new; almonds, chesnuts, walnuts, hazel-nuts, filberts, and all other nuts and kernels; unripe, acid, and austere fruits, and especially such as are of a firm texture, and abound in insoluble matter, as many kinds of plumbs, and pears; cucumbers; acids; pickles of all varieties; and every substance which, at the same time that it is hard, and of difficult solution, affords but a small portion of matter capable of being converted, by the strongest stomach, into good nourishment.

The *immoderate use of warm diluting liquors* is found by experience greatly to relax the tone of the stomach, and intestines; to render food, even of moderately easy solution, too heavy for their enfeebled efforts, and not to be digested but with uneasiness and difficulty; and hard, and unyielding aliment, almost perfectly insoluble. It must, therefore, have a powerful tendency to debilitate the whole muscular, and vascular systems; and to bring on all those bodily indispositions which arise from the infirm tones, are calculated to affect the mind with timidity, anxiety, and dejection, and have a peculiar propensity to become remote causes of insanity.

But

But of all the remote causes of this disorder arranged under the division in the table now under consideration, there is not a more powerful one than *intemperance;* which if indulged in the use of food in its own nature productive of such injury, both in the first passages, and in the general habit of body, as has a tendency to give occasion to insanity, will much increase that tendency: since great excess in diet of any kind, even the most wholesome and nourishing, and of the most easy digestion, may, it is obvious, produce the same effects, if long and habitually persisted in, as food of difficult digestion, or the immoderate use of warm diluting liquors; however carefully these less friendly articles of diet may be avoided; by overloading, distending, and debilitating the alimentary canal, and giving occasion, by delay, to those spontaneous changes of the food, which it would undergo in similar circumstances out of the body, and to the generation of wind, acidity, and all the other symptoms and consequences, whether local or general, of indigestion; to which will be added the oppressive, and otherwise dangerous influence of repletion. And thus the plainest and simplest food, may by an excess in quantity do that injury, which it was incapable of doing by its quality.

As indigestible food, immoderate dilution, and intemperance, are causes, so *viscid phlegm* is a consequence of debility in the first passages, and

and of its offspring indigestion; and tends to increase the evils to which it owes its birth. Like the other effects of indigestion, it is a common symptom, and has probably some share in the production, of hypochondriacal melancholy.

Congestions of viscid matter in the stomach, and intestines, of persons of weak bowels, of lax and sluggish habits, of a sedentary and inactive life, and of great reading and close thinking, are not uncommon; and are sometimes so excessive, as to be equally astonishing, and alarming. They are frequent among weakly children, delicate women, mechanics whose employment requires little exertion of strength, and constant sitting; but above all, among such literary persons as are inordinately devoted to study. Of such a collection in the intestines, owing to great bodily inactivity, joined with intense, and unremitted, application of mind, we have an extraordinary example in the case of the very learned, and deservedly celebrated, JUSTUS LIPSIUS*; who was long tormented with the most troublesome complaints, from which he could obtain no relief, till he had evacuated, by stool, a viscid pituitous substance, of the form, and colour, of the intestines, in the cavity of which it had been gradually accumulated, during a long course of literary indolence, till it had covered the internal surface of the tube with a preternatural lining.

* Vide TISSOT de Valetudine Literarorum, p. 33.

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The same may be said of *worms* in the alimentary canal, as of viscid phlegm. Their eggs being taken in with the food, finding a proper nest in the stomach, and intestines, already infirm, and abounding with viscid matter, and there assuming their vermicular state; they add to the load, as they grow and multiply, with which these parts were but too much oppressed before; increase their debility; promote the accumulation of phlegm; and thus nourish the disorders which favoured their birth, afforded them habitation and support, and contributed to their multiplication.

Since worms are thus the effect and the cause, of debility, of the first passages; and are capable of aggravating all its consequences; it is easy to perceive how they may contribute to the production of insanity. And we shall be more convinced of their power in this respect, when we consider how likely they are to irritate, as well as to weaken, the very delicate, and sensible, parts, in which they are lodged; and of course to produce the most violent effects of immediate sympathy, as well as those arising from slow, and gradual, changes in the constitution. Indeed the most alarming, and extraordinary, symptoms of disorder in other, and remote, parts, have frequently, with justice, been ascribed, in a great measure, to the irritation of worms, viscid phlegm, and other indigestible, or acrimonious matter, in the first passages. And that delirium, and insanity,

nity, have owed their excitement to such a cause, we have not only the testimony of general opinion, but the actual relations of particular cases: and we daily see, in the worm-fevers of children, how apt the irritation of worms, and viscid matter, in the bowels, is to affect the brain, by the delirium, and coma, which are their frequent symptoms[p].

3. As the causes mentioned in the preceding article have all a tendency to disorder the brain, and to induce insanity, chiefly by slow, and progressive depredations on the health of the body, and by imperceptibly undermining its vigour, and diminishing all its tones; effects in the production of which their principal agency is gradually exerted on the alimentary canal: so, on the other hand, such active substances as *wine, opium, and other narcotics, and poisons,* not only possess a like property of effecting, when habitually indulged in to excess, a progressive change in the general system favourable to insanity, by operating slowly upon the constitution, gradually

p Dæmonomania a vermibus. SAUVAGES. Nosol. Method. Class viii. Gen. xix. 4. tom. iii. Part. i. p. 397.—Vide etiam JUNCKERI Conspect. Medicin. Theoret. Pract. Tab. cxxii. p. 926, v. Causæ.—HARRIS de Morbis Acutis Infantum, p. 52.—ANDRY de la Generation des vers dans le Corps de l'Homme, chap. iv. art. ii. p. 79, &c.—et Auctores Medicos passim.

debili-

debilitating the stomach and intestines, injuring all the viscera, and diminishing the tones of the whole body;—but have likewise, by a peculiar sympathy between the stomach and brain, a powerful, and peculiar propensity, to affect the latter, —and either gradually to weaken its vessels and membranes, increase their irritability, induce a facility of determination of blood to the head, and thus to generate a local predisposition to delirium, and insanity;—or, by stimulating the vessels of the brain into sudden and violent exertions, to excite almost instant delirium, and very speedy insanity.

The effects of *wine* are notorious; and, like those of our daily food, would appear more wonderful, were they less common. This exhilarating beverage rouses the languid energy of the nerves, and like actual nourishment, refreshes the whole animal machine, the moment it enters the stomach of the weary and exhausted. If too plentifully taken, it increases both the force, and quickness, of the circulation; creates heat, and thirst; accelerates the action of the small vessels of the whole system, and particularly of the head, and brain; excites cheerfulness, and self-importance; makes a man feel happy in circumstances of distress; and great and independent, in the midst of insignificancy, control, and oppression; and renders him sociable, or reserved, merry or disputatious, friendly or quarrelsome, generous and humane,

mane, or malevolent and revengeful, as its effects on the body, and spirits, happen to operate upon his natural disposition, or are determined by accidental circumstances. His ideas are at first rapid, then deranged, then perfectly confused and incoherent, then fixed in stupid stagnation, and at last almost entirely obliterated in the profound insensibility of a nearly apoplectic sleep.

It appears, therefore, that intoxication may emulate almost every species of madness, and idiotism. And as this similarity between intoxication, and insanity, arises from a similarity, in both cases, of the preternatural states of the brain; were the temporary state arising from intoxication to remain, after the immediate operation of the liquor had ceased, it would no longer be intoxication, but insanity. And this sometimes actually happens. More frequently, however, insanity is the dreadful consequence of a habit of intoxication; of which, unhappily, the instances are *too* numerous to escape the notice of the most inattentive observer.

But in no case is inebriation with wine, or other fermented, or spirituous liquors, so apt to terminate in insanity, as when it prevents sleep: and thus not only approaches nearer to a state of insanity, the beginnings of which are commonly attended with excessive watchfulness; but increases the danger of such a termination, by continuing both the power, and the inclination, of incessantly

santly renewing the cause, and adding fuel to the flame, of intoxication; when the seasonable interposition of sleep would at least give a temporary suspension to the former, and by favouring the return of sobriety, and reason, might fortunately put an end to the latter. Persons thus affected by wine will frequently persevere in drinking without interruption, and with little or no sleep, for days, and weeks together; and when at length obliged, by the forcible interposition of their friends, to desist, not uncommonly continue insane for weeks, and months, after the first exciting cause has been thus withdrawn; sometimes never recover; and often remain liable to occasional returns of insanity; which usually in the end becomes perpetual, and incurable.

The effects of *opium*, are nearly similar to those of wine. But while the more direct tendency of the latter is to intoxicate, that of the former is to induce sleep. Like wine, however, it is more likely to give rise to speedy insanity, when, instead of sleep, it causes intoxication, and watching.

Opium, as well as wine, occasions a predisposition to insanity,—when the free use of it is habitually indulged,—not only by such frequent repetitions of increased action in the vessels of the brain, and of temporary states of that organ which differ from insanity merely in duration, as to give to such states a facility of excitement, and an aptitude to continue: but by injuring digestion,

gestion, chylification, sanguification, secretion, excretion, and nutrition; by diminishing ultimately all the tones; by creating languor; by increasing morbid irritability and sensibility; by exciting spasms, and painful sensations; and by inducing dejection, and pusillanimity: some of the most obstinate causes of insanity, in all its forms.

So dreadful are the languor, and the distressful feelings both of body and mind,—known to hard drinkers by the appellation of the horrors,—arising from excessive indulgence either in wine, or opium, as, even when they have not given occasion to actual insanity, to render life a burden; and to tempt some, while under the depression of inexpressible languor, and in the desperation of hopeless suffering, to free themselves by suicide from an agonizing state of present misery, than which they can conceive nothing future to be more intolerable[q].

Other

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[q] I know not where I can with more propriety, than in this place, take notice of a remark of the late Dr. WALL of Worcester, incidentally made in a letter to Sir GEORGE BAKER, relative to the impregnation of the cider of the counties of Hereford, Glocester, and Worcester, with the poison of lead, and to the endemic diseases of those counties; which was first published by Sir GEORGE BAKER, in the Medical Transactions*; and afterwards republished by Dr. MARTIN WALL, in a collection of his father's Medical Tracts†.

* Vol. i. p. 202. † Page 309.

Other *narcotics*, and indeed all *poisons* which have

"I have heard it observed," says he, "by a physician, late of this city, who was much employed in the cure of lunatics, that more of those unhappy persons came to him from Herefordshire, than from any other place. The fact, if true, may possibly arise from the quantity drunk, rather than the quality."

To this remark of his father, the son has subjoined the following note.

"In a paper inserted in the Glocester Journal, March 3, 1777, to recommend the scheme for instituting a hospital for lunatics at Hereford, is the following sentence, which seems to shew that the opinion of the frequency of lunatics in that county is not uncommon; at least that it was not peculiar to the physician mentioned above. The writer after enumerating several considerations which he thought necessary to demonstrate the utility of such a hospital, says, 'These considerations plead strongly in favour of the proposed scheme; and the more so from a circumstance, perhaps, not generally known; that the cider-counties unfortunately abound with the greatest numbers of these objects of compassion.' Future accurate observation will determine, whether this opinion has any foundation, and to what cause it is to be ascribed."

My distant situation from the cider-counties having deprived me of the opportunity of personal experience in this matter, I can say nothing, from my own knowledge, about it; and have only to add, to the authorities above quoted, the following observation of Dr. THOMSON, a very able and experienced physician of Worcester, which I received some time ago, in answer to a letter which I had written to him on this head; and which seems to confirm Dr. WALL's remark: and the opinion of Dr. HARDY,—the ingenious author of a valuable treatise on the colic of Poitou and Devon,—which seems to militate against it.

"My own experience," says Dr. THOMSON, "entitles me to

have the power of intoxicating[r], as most of the vegetable

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say very little on the subject. In the course of business, I have been often called into those parts of Herefordshire that lie contiguous to this county; but I do not recollect that I there met with, or heard of, more people labouring under insanity, than in this or any other of the neighbouring counties, where my business may occasionally call me. But I met with an observation, some time ago, that may throw some light on this matter. It was made by a very sensible and observing man who, for many years, kept a house for the reception of lunatics, within a few miles of this place. He said, that in plentiful years of cider, when the lower class of people had an opportunity to drink large quantities of it, he usually had many patients from Herefordshire; but that a few weeks confinement to water-drinking, and some medicines of the cooling and purging kind, generally sent them home—sober, and in their senses.

"This observation, you see, corresponds with what the late Dr. WALL says with regard to the quantity instead of the quality of cyder, considered as a cause of insanity. I know not whether the lunatic hospital has taken place at Hereford. Whenever it does, we may, if this observation be well founded, conclude, that, on such occasions, it will be very full of patients; and the practice particularly successful."

Dr. HARDY observes, that in the north part of Devon, where he resided for several years, and where large quantities of cider are generally drunk, so as to render the colic frequent, and endemic, instances of lunacy are by no means more common than in any other part of England, in which he has had an opportunity of making observation:—that he is certain that the medical gentlemen in that part of Devon would agree in this opinion:—that it appears to him highly probable, that had instances of lunacy often occurred among the drinkers of cider on the other, or southern side of the county, he must have

vegetable poisons have,—such as the hyoscyamus[s], stramonium[t], napellus[u], belladonna[v], œnanthe[w], mercurialis[x], cannabis[y], coriaria[z], certain species of fungi, and a few more,—since they affect the brain nearly in the same way as wine and opium, are likely, under similar circumstances, to give rise to similar effects, and to be, like them, productive of insanity. Some we know have actually produced it; as the napellus, in the case, already related, of VAN HELMONT[a]; the stramonium, on various occasions, and among the rest, in certain instances of supposed witch-

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have heard of it from several gentlemen with whom he had a correspondence:—so that he thinks, that the observation of Dr. WALL is not confirmed among the cider-drinkers of Devonshire.

[r] Vide SAUVAGESII Nosol. Method. Class viii. Gen. xvii. Paraphrosyne. tom. iii. Part i. p. 364, &c. &c. et Gen. xix. Dæmonomania Sagarum, ib. p. 393. Dæmonomania Indica, ib. p. 400.

[s] Hyoscyamus niger of LINNÆUS—common henbane.

[t] Datura stramonium of LINNÆUS—thorn-apple.

[u] Aconitum napellus of LINNÆUS—monk's-hood.

[v] Atropa belladonna of LINNÆUS—deadly nightshade, or dwale.

[w] Œnanthe crocata of LINNÆUS—hemlock dropwort.

[x] Mercurialis perennis of LINNÆUS—dog's mercury.

[y] Cannabis sativa of LINNÆUS—hemp.

[z] Coriaria myrtifolia of LINNÆUS—myrtle-leaved sumach.

[a] Vide supra, vol. i. p. 183.

craft

craft related by SAUVAGES[b]; and several others. Indeed examples of temporary delirium and insanity excited by vegetable poisons, though happily not familiar, but too frequently occur in the course of medical reading, and practice. Nor are there wanting melancholy instances, in which poisons of this sort have given occasion to insanity, or idiotism, which have not only been more permanent, but have remained during life. Examples of the first kind, or temporary insanity, from narcotic vegetables, may readily be found in the common histories of their poisonous effects:—of the latter a most detestable one is furnished by the practice of some Indian nations, whose sovereigns, as we are told, inebriate, and stupify, the mental faculties of their younger brothers, and of others whose degree of consanguinity is near enough to excite their jealousy, by a preparation of a poisonous vegetable called *bangue*[c]; and

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[b] SAUVAGESII Nosol. Method. Class viii. Gen. xvii. Spec. 5. Paraphrosyne magica, tom. iii. Part. i. p. 370, et Gen. xix. Dæmonomania Sagarum, ib. p. 393.

[c] Supposed to be the same with the cannabis sativa; from which however Sir HANS SLOANE says it essentially differs.—Vide RAII Histor. Plantarum, tom. i. p. 159.—I do not find that LINNÆUS was certain about it. In the Amœnitates Academicæ, vol. vi. p. 184, he supposes, on the authority of HERMAN, that it is the hibiscus sabdariffa. His character of the cannabis sativa is, that it is—narcotica phantastica, dementans, anodyna, repellens,—" narcotic, productive of ideal delirium,

and thus effectually extinguish the aspirations of ambition in the imbecility of idiotism:—and of both, in the effects of philtres, or love-potions; which have sometimes been charged, with apparently sufficient ground, as the causes of these disorders; and in the preparation of which, it is probable that, among other ingredients, some narcotic poison was usually employed.

That the safe, or at least the agreeable, internal use of some such vegetable production, besides the juice of the poppy, was known in times of very high antiquity, seems evident from what we read in HOMER of a medicament which HELEN mixed with the wine which she gave to TELEMACHUS, and his companion.

> Mean time with genial joy to warm the soul,
> Bright HELEN mix'd a mirth-inspiring bowl:
> Temper'd with drugs of sov'reign use, t'assuage
> The boiling bosom of tumultuous rage;
> To clear the cloudy front of wrinkled care,
> And dry the tearful sluices of despair:
> Charm'd with that virtuous draught, th' exalted mind
> All sense of woe delivers to the wind.

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delirium, and madness, anodyne, and repellent."—LINN. Mater. Medic. p. 214.—LORRY supposes it to be the solanum furiosum; that is the atropa belladonna of LINNÆUS, or deadly nightshade.—De Melancholia, Part i. cap. iv. tom. i. p. 88.—See Baron DE TOTT's Account of the Takers of Opium in Turkey.—See also CAMPBELL's Journey over-land to India, 4to. 1796, Part iii. p. 7.

Though

Though on the blazing pile his parent lay,
Or a lov'd brother groan'd his life away,
Or darling son oppress'd by ruffian force
Fell breathless at his feet, a mangled corse,
From morn to eve, impassive and serene,
The man entranc'd would view the deathful scene[d].

The intoxicating effects, so dissimilar in some respects from those of opium, here ascribed to this exhilarating beverage; and attributed to the addition of a mysterious drug, which, from the first epithet applied to it by the immortal bard, has obtained the appellation of *nepenthes*; as well as the total ignorance of the Greek writers, to whom the properties of opium were no secret, concerning the nature of this wonder-working substance which HELEN is said to have infused into the bowl; seem plainly to indicate, that it was something different from simple opium, of which, however, some portion might possibly enter into the composition.—According to the poet—

These drugs so friendly to the joys of life,
Bright HELEN learn'd from THONE's imperial wife;
Who sway'd the sceptre, where prolific Nile
With various simples clothes the fatten'd soil.
With wholesome herbage mix'd, the direful bane
Of vegetable venom taints the plain[e].

It seems, indeed, highly credible, that the

[d] POPE's HOMER's Odyssey, book iv. v. 301, &c.
[e] Ibid. book iv. v. 315, &c.

Egyptians, and the inhabitants of India, had a very early knowledge of inebriating substances of this sort; since, besides what may be collected from these verses of HOMER, and other pssages of ancient writers, it is an undoubted fact that they are in possession of several at this day, of which numberless testimonies might be adduced[f]; and

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[f] We are told by PROSPER ALPINUS, that the Egyptians were, in his time, acquainted with a great variety of these inebriating compositions; which they had in such familiar use, that it was no uncommon thing to see persons intoxicated with them, and acting like madmen; and especially in the strange motions of their heads, and eyes: and that it was usual for them, when they wished to avoid any disagreeable engagement, to excuse themselves by alledging that it would interfere with their stated time of taking the herb; a term signifying the taking of any of these inebriating substances; the principal of which are known by the names of affion, assis, bosa, bernavi, and bers; of all which he gives some account.—*See his Treatise de Medicina Ægyptiorum,* lib. iv. cap. i. p. 118—122.

KEMPFER mentions a medicament of this sort, the effects of which seem nearly to have resembled those of the *nepenthes.* He says, that he, and others, his companions, partook of an electuary, which was offered them at an entertainment in India; that they soon felt themselves so exceedingly happy, as they could no way express but by laughing, roaring, and embracing each other; that, in the evening, when they mounted their horses to return home, they seemed to be flying through the clouds upon Pegasus, surrounded with rainbows; that when they came to themselves, they eat most voraciously of whatever was set before them; and that they were, on the day following, in perfect health both of mind and body.—*See* SAUVAGESII *Nosol. Method.* Class. viii. Gen. xvii. tom. iii. Part. i. p. 371.

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it is well known that the opinions, manners, and customs of the inhabitants of India, and of other Asiatic nations, have undergone very little change since the earliest times in which we have any account of them. Some of these the Egyptians prepare themselves; while others, with whose preparation they are unacquainted, they still receive, as they probably always received them, from the luxurious Asiatics, to whom they may have been originally indebted for them all; and with whom it is certain that they carried on a considerable traffic, as we learn from sacred history, long before the days of HOMER, or of HELEN.

But whether HELEN was really possessed of any composition of this kind, of which she knew the use, if not the preparation; and which she actually mixed with the wine presented to her guests on this occasion: or whether the whole be no more than a probable fiction of the poet, who might frequently, during his travels in Egypt, have seen the effects of such compositions, and might possibly have been instructed in the preparation of some of them: yet, the pleasures of this species of inebriation having never received the sanction of custom, or been naturalized, in Greece; the knowledge of the methods, by which it might be excited, might either die with, or not long survive, the first introducers.

Effects of a very different kind from those produced

duced by vegetable narcotics, and poisons, and singularly uncommon in their nature, and appearance, have long been attributed to the venomous bite of the Apulian tarantula[g]; which, if real, are, perhaps, to be considered as symptoms of a peculiar variety of impulsive insanity. BAGLIVI, whose judgment, abilities, and inquisitive turn of mind, were not very compatible with the blindness of credulity; and whose situation was favourable to an inquiry into the real truth of this matter; enumerates these extraordinary effects, as known, and indisputable; relates several particular histories of them; and minutely describes the spider from whose bite they are supposed to proceed; which, he tells us, is no where poisonous but in Apulia, and there only in the plains, and not on the neighbouring mountains, in the summer season, and especially in the dog-days; and adds, that the reapers in the time of harvest are so liable to be wounded by these pernicious little animals, that they wear short boots with an express view to defend their legs from their bite[h].

But notwithstanding the authority of such a man as BAGLIVI, who was an eye-witness of many of the facts which he relates; some late travellers, of respectable character, who have inquired into

[g] Aranea Tarantula of LINNÆUS.

[h] BAGLIVI Dissertatio de Anatome, Morsu, et Effectibus Tarantulæ. Operum, p. 599, &c.

this

this matter upon the spot, have treated the whole as a fable, or a cheat; or, at best, as a popular delusion[i].

4. Insanity may likewise take its rise from disordered states of the *womb*, *ovaries*, and *spermatic vessels*, and of the parts with which they are connected. The conditions of these parts here principally intended, are such as are by their nature adapted to become the immediately exciting causes of the two varieties of appetitive insanity, *satyriasis*, and *nymphomania*.

These disorders may owe their origin to an immoderate, and unseasonable, indulgence in lascivious ideas, in persons who are withheld by religious, modest, or other fear, from the irregular gratification of an appetite, which, in their situation, cannot be gratified, decently, lawfully, or conscientiously[j]:—to the temporary, and accidental existence of an undue sensibility of these parts, arising from merely corporeal causes; as

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[i] See FOSTER's Translation of Baron RIEDESEL's Travels through Sicily, and that part of Italy formerly called Magna Græcia, &c. p. 212, &c.

[j] Vide SAUVAGESII Nosol. Method. tom. iii. Part. i. Class. viii. Gen. xiv. 1, p. 343, et 2, p. 345.—SENNERTI Oper. tom. iv. p. 688.—ZACUTI LUSITANI Prax. Medic. Admirand. lib. ii. Obs. 93, tom. ii. ad Calcem, p. 64.—SCHENCKII, Obs. Med. Rar. p. 134, Obs. 4.

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the luxuriancy of vigorous youth[k]; the occasional irritation of intemperance in diet, and especially in wine, and too nourishing, or high-seasoned meats; the suppression of the menstrual discharge[l]; the unseasonable abstinence of virtuous persons from the matrimonial connexion[m]; or the like[n]:—or to something preternatural in their structure, either coeval with the birth, or afterwards superinduced by disease[o], so favourable to the production of these disorders, as readily to give rise to them; and especially when aided by the accidental co-operation of any suitable exciting cause.

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[k] Seminis retenti ardor. HOFFMANNI Supplem. Secund. Part. Secund. De Mentis Morbis ex Morbosa Sanguinis circulatione ortis, § 16, p. 336.—BARTHOLINI Hist. Anat. Rar. Cent 2, Hist 69, p. 258. Vide etiam SAUVAGESII Nos. Meth. &c. supra citat.

[l] Mensium Suppressio. HOFFM. ib.—SCHENCKII ib.

[m] Lymphæ Seminalis diuturna nimis retentio. HOFFM. ib. § 9, p. 333 —SAUVAG. ib. p. 344.

[n] Vide SENNERTI Oper. tom. iv. p. 688. Where we are told, "De muliere nupta, quæ in furorem uterinum per intervalla incidit, cum non esset prægnans; si, scilicet, post partum inter annum aut duos non conciperet. Postquam vero a viro concepit, semper libera fuit."

[o] Clitoris miræ magnitudinis. Ovarium maximæ magnitudinis, &c. &c. BONETI Sepulch. tom. i. p. 216. Obs. 1.—Testiculus sinister pugni magnitudinem circiter adæquans, &c. Id. ib. p. 220, 2.—Cadavera ostendere clitoridem tumidam, ovaria solito majora, tubas Fallopii clausas. SAUVAG. ib. p. 346.—Clitoridem obsidet materies herpetica acris, mordax. Id. ib. p. 346, 4.

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It has been remarked, that the maniacal are in general peculiarly disposed to be amorous. But though this is not true, it is a certain fact, that they are sometimes so in a very disgusting degree. This I have frequently observed in persons who, when in their right minds, were modest, sober, and religious; and who had probably but little, if at all, indulged in wanton ideas.

In such cases, this symptom has not made its appearance early in the disorder; nor discovered itself till the insanity, which had originally no connexion with appetite, has acquired a very formidable magnitude, and the moral sense been much impaired by the almost total derangement of reason.

When satyriasis, or nymphomania, appear thus late in the disorder, it is probable that they are the consequence of some very erroneous, and absurd notions or delusive images, which originate in the disordered state of the brain.

But when they are the first, and most prominent symptoms, and precede the other indications of insanity; they arise out of some of the causes above-mentioned; which, first exciting inordinate and ungovernable appetite, lay the foundation of insanity as its natural offspring.

How such inordinate appetites should generate insanity, may readily be conceived, if we reflect,—that it is of their nature to dwell perpetually upon their object, to the exclusion of almost every other;

other;—that this incessant brooding over the object of desire, soon effectually banishes sleep;—that the unconquerable desire of vitious, and unlawful gratification, is not only attended with constant watching, but with shame, impatience, fear, anxiety, remorse, and all those uneasy, and agonizing feelings, which naturally accompany the agitation of contending passions, the violent and painful struggles between conscience and inclination, virtue and appetite;—and that while of itself it powerfully impels the blood into the head; and heats, and excites the activity of the brain; these immediate, and necessary effects of amorous propensity, are much heightened by the co-operating influence of the above-mentioned unavoidable concomitances, and consequences. Since close attention to one subject, uninterrupted watching, and the painful agitation of various and opposing passions, all determine the blood too copiously to the head, and are powerful agents in the production of insanity.

To all this may be added, the peculiar sympathy which subsists between these organs and the whole system of the brain and nerves; and their tendency, when in too irritable a state, to propagate an undue degree of irritability throughout the body,—to produce hysterical spasms, and other symptoms of nervous affection,—and to excite that sympathetic, and, as it might not improperly be termed, hysterical delirium, the con-

nexion

nexion of which with disorders of the womb[p], ovaries, and spermatic vessels, we are better able to prove, than to account for.

Happily satyriasis, and nymphomania, are not very common. The latter, for various, and obvious reasons, is more frequent than the former; the delicacy, timidity, restraint, and peculiar natural economy, of the fair sex, rendering them more liable to the one; than the licentious freedom of indulgence, in which men too generally allow themselves, leaves them in danger of the other.

5. The peculiar economy of the womb, in the human species; its monthly discharge during a certain period of life, and the customary evacuation from it, termed the *Lochia*, after lying-in; the influence which these hæmorrhages have upon the state of the vascular system; their connexion with health; and the sympathy which subsists between the womb and the rest of the body in general, and the breasts in particular; are striking circumstances in the female system.

If we consider the condition of the womb during pregnancy, its gradual and immense distension, and the extraordinary increase at the same

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[p] See a very curious, and interesting case, of this kind of delirium, in LORRY's Treatise, De Melancholia, tom. i. part. i. cap. iii. p. 78.

time

time in the thickness of its spongy substance, owing probably to the unfolding of the infinity of blood-vessels with which it is supplied, and which, with the blood that fills them, compose the greatest part of its bulk; if we consider the unusual quantity of blood which must be prepared to supply these vessels, and to furnish nourishment, and increase, to the growing fœtus; if we consider the sudden alteration in the capacity of this organ, after the birth of the child, and that there is then no longer a demand for any extraordinary supply of blood, either to distend the one, or to nourish the other; and at the same time reflect on the violence, and injury, which the womb, and neighbouring parts may have undergone during delivery; and how liable they are to suffer from a variety of causes, at first of inflammation, and afterwards of putridity; and if to these considerations we add the increased irritability both of the womb, and of the rest of the body, as well from the pains of labour, and those which succeed it, from the dissipation of the nervous power, and diminution of strength, as from the other causes above-mentioned, and from the extraordinary changes that are now to take place in the system, to provide for the nourishment of the infant, by new ways in its new state; we shall not be surprised that a variety of distressing, and alarming disorders, and among the rest that insanity itself, should be the common consequences

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of too small a discharge of this kind; and, especially, of its sudden diminution, or suppression altogether.

Insanity may be produced by these means in several ways. For either the blood with which the habit may be supposed to abound in an extraordinary degree, in the latter months of pregnancy, and beyond what is consistent with health, if retained in the body after delivery, may in consequence of the sudden suppression, or great diminution, of its discharge, be diverted, by some accidental, and imperceptible cause, to the brain; or an inflammatory state of the womb may, by these means, be brought on, and the brain may suffer, during the inflammatory action of the heart and arteries, by the violence of that action, by the sympathy between the two organs, or by some accidental determination to the brain, or constitutional irritability in its vessels, or other peculiar predisposition; or it may suffer, from similar causes, in the common course of any other kind of fever; or merely from the generation, or increase, of preternatural irritability, and consequent hysterical symptoms, by such deviations of this evacuation from its natural procedure, without the concurrence of any perceptible fever: the agency of all which in the production of insanity may be assisted by improper medicines, diet, or regimen; by violent perturbations of mind;

mind; or by various other incidental, and conspiring causes.

If to the consideration of all these circumstances of danger, with which the deficiency, or the sudden diminution, or suppression, of the lochial discharge, are accompanied, we add that of the numerous causes from which these irregularities may originate; and the frequent mismanagement of nurses, friends, and attendants; which happily, however, are now much less common than formerly; we cannot but admire the kind superintendence of Providence, and the surprising efficacy of Nature, in the preservation of lying-in women; and ought rather to wonder that they so often escape, than that they sometimes suffer, violent disorders after delivery, and that delirium, and insanity, are not the least frequent of these disorders[q].

It is, probably, owing to similar causes, that is to plenitude, fever, and increased irritability; and not to a translation of the milk to the brain; or, as the French term it, *depôt laiteux sur le cerveau*; that the non appearance, or sudden

[q] Vide HOFFMANNI Med. Rat. Syst. tom. iv. part. iv. cap. viii. § 22. et § 27. Oper. tom. iii. p. 255, et 256.—BONETI Med. Septentr. Collat. lib. i. sect. 19. cap. ix. sub Fin. p. 188.—VAN SWIETEN Comment. in BOERH. Aphor. § 1127, tom. iii. p. 531, &c.

cessa-

cessation, of this salutary secretion, are sometimes succeeded by insanity: and especially if accompanied, or preceded, by a suppression of the lochia; and Nature be not speedily relieved by a fortunate flow of the menstrual discharge[r].

As the lochia are an occasional, so the *menses*, or catemenia, are a periodical evacuation, of superfluous blood, by the vessels of the womb; and both are the consequences of a plethoric state, either general or partial. Their suppression may, therefore, so far as the circumstances are similar, bring on similar effects, by similar means. As they are not accompanied with the pain, and violence, of child-birth; nor with so extraordinary, and sudden a change in the state of the womb, as is experienced after delivery; so their suppression will be less liable to be attended with inflammatory, or feverish symptoms; and its effects will usually be less rapid, and less alarming; and will rather be the produce of gentle, gradual, and persevering influence, than of urgent, and impetuous force: and while the former attacks the delicate female fabric with violence, and by storm; the latter will insensibly undermine it by repeated, and unremitting efforts.

Its operations are directed to produce an unnaturally plethoric state; to distend, and overload,

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[r] Vide SAUVAGESII Nosol. Method. tom. iii. part. i. Class. viii. Gen. xx. 2. Mania Lactea, vol. iv. p. 405.

the vessels, in particular, which are distributed through the abdominal viscera; to obstruct, and counteract, the regular proceedings, and energies of Nature; to excite disorderly determinations of blood, and hemorrhages, in various parts[a]; to create a morbid degree of irritability in the womb, and of consequence in the whole system; to weaken digestion; impede chylification; deprave nourishment; enfeeble the tones; produce languor, indolence, debility, low spirits, and dejection; in all these ways, aided by a suitable concurrence of conspiring circumstances, to give occasion to determinations of the circulating fluid to the head; and not only to create hysterical, and hypochondriacal[b] symptoms, and melancholy; but, at one time or another, almost every possible variety of insanity[c].

And

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[a] Vide HOFFMANNI Med. Rat. Syst. tom. iii. sect. 1, cap. ix. § 3, 4, 5, 6, 7. Oper. tom. i. p. 340, &c.—et Med. Rat. Syst. tom. iv. Part. iv. cap. viii. § 22, et 27. Operum tom. iii. p. 255.—ALBERTI, Introduct. in Universam Medicinam, Part i. p. 156.

[c] Instances of insanity, from a suppression of the menses, are very common. I shall only refer to a few.—HOFFMAN relates a case of a periodical delirium, with epileptic fits, from a suppression of the menses, which was brought on by anger.—*Operum* vol. iv. cas. 38, p. 64.—SCHENCKIUS relates one of nymphomania, and one of mania, from the same cause.—*Obs. Med. Rar.* lib. i. p. 134, Obs. 4, et p. 138. Obs. 3.—OLAUS BORRICHIUS gives one, in which the brain was so much affected

And not only the suppression of the menses, after they have been accustomed regularly to flow; but their long and obstinate retention, or non-appearance at the time of life when they ought naturally to show themselves; may give occasion to insanity. In the latter case, the disordered state of the brain will originate from causes in a great measure similar to those which give rise to it in the former; but especially from debility of the whole vascular system, from a languid state of the chylopoietic viscera, from general weakness, and a diminution of all the tones.

The suppression of habitual, and periodical, discharges of blood from the hemorrhoidal vessels, commonly called the *piles*, is likewise a source of insanity. This evacuation, though a preternatural one, and always the indication of a disordered state, becomes to some persons, by

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fected by the suppression of this evacuation, that the memory was almost obliterated; so that the unhappy sufferer not only became timid, and distressed, but though a very religious person, could not so far recollect herself, as to repeat the Lord's Prayer.—*Act. Hafniens.* vol. ii. Obs. 78, p. 196.—ZACUTUS LUSITANUS furnishes an instance of deep melancholy from a suppression of the menses—*Operum* tom. i. p. 71, Obs. 34.—And BONETUS two cases of insanity from the same cause; which were both cured; one by the restoration of that evacuation, and the other by the regular course of the lochia after lying-in.—*Med. Septentr. Collat.* lib. viii. sect. 19, Obs. 1 et 2, tom ii. p. 421.

habit, as essential to health, as the above-mentioned natural discharges[u], and in such cases, its suppression may bring on insanity; either suddenly, by inducing a plethoric state of the blood-vessels, and exciting an extraordinary determination of the superabundant blood to the head; or slowly, by loading the vessels of the alimentary canal, obstructing its functions, injuring digestion, and nutrition, producing flatulency, hypochondriacal and spasmodic symptoms, general debility, and weakness of tones.—Cases of insanity[v], in the production of which the suppression of the hemorrhoidal flux appears to have been instrumental, frequently occur both in reading and practice. Nor are there wanting others, in which, though the disorder has not been owing to a suppression of a customary bleeding of the piles; it has been thought to have a very similar origin; and has been reasonably attributed to the imprudent neglect of usual blood-letting; or to

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[u] Vide Hoffmanni Med. Rat. Syst. tom iii. sect. 1, cap. ix. § 10—25. Operum tom. i. p. 342, &c.—Alberti Introd. in Universam Medicinam, part i. p. 166, &c.

[v] Vide Hoffmanni Med. Rat. Syst. tom. iii. sect. 1, cap. ix. § 14, 15, 16. Operum tom. i. p. 343—Id. ib. tom. iv. part i. cap. viii. § 22. Operum tom. iii. p. 255.—Id. ib. p. 264. Obs. 2.—Zacuti Lusitani Oper. tom. i. p. 7, col. 1, A.—p. 77, Hist. 39.—p. 78, Hist. 40.—Van Swieten Comment. § 1127, tom. iii. p. 253, &c.

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the ceasing of habitual hemorrhages from the nose[w].

Insanity has also frequently been observed, sooner or later to succeed the *suppression of old ulcers*, or other preternatural discharges of serous fluids, whether induced by disease, or procured by art: and has, therefore, with great probability, been attributed to the suppression which preceded it; though there may seem to be some difficulty in attempting to account satisfactorily for such an effect from such a cause.

If the discharge has been copious, and has suddenly been suppressed by art, or ceased spontaneously; and no other evacuation has been substituted in its stead, which, in some circumstances, ought on no account to be omitted; the superabundant fluid, which used to be separated from the blood, to supply the customary evacuation, being no longer wanted, will be retained in the vessels; and fresh blood being daily furnished by habit in the usual quantity, or nearly, a state of plenitude will be produced; but how easily the brain may be affected by a sudden production of fulness in the blood-vessels, has already been noticed. It may, therefore, be supposed that the superfluous blood which formerly supplied the waste of the ulcer, or other similar cause of eva-

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[w] Vide HOFFMANNI Med. Rat. Syst. tom. iv. part. iv. cap. viii. § 22. Oper. tom. ii. p. 255.

cuation, being retained in the body, may by an accidental influence be determined to the brain. And, in the case of some morbid discharges, we may farther suppose, that the same disease in the habit which gave birth to the ulcer, may excite a disposition in the vessels of distant parts, and among others in those of the brain, to renew in themselves the disordered action which has ceased in the vessels of the part originally affected: and may in this way either generate an immediate disease in the brain, productive of insanity; or, by occasioning glandular obstructions, or other disorders in the abdominal viscera, impeding digestion and nutrition, weakening the tones, increasing irritability, and exciting uneasy sensations, may give rise to a variety of hypochondriacal and hysterical symptoms, and to such other gradual changes, as may at length terminate in this disorder.

Besides the suppression of habitual ulcers of a morbid nature, of old issues and setons, or of any copious discharges from the skin, of which there is great variety; the suppression of some other habitual drains has been accused of giving occasion to insanity: as of the *whites* in females; and of the preternatural exudation by the vessels of the head, and hair, in the inhabitants of Poland, and of certain parts of Russia, Prussia, and Germany, by cutting off the diseased, and cohering locks, which constitute the principal, and

most

most conspicuous symptom, of a very nauseous and sordid disorder, called, from its peculiar frequency in the former of these countries, the *plica Polonica*[x].

Obstructed perspiration has also been mentioned among the causes of insanity, by HOFFMAN[y], and VAN SWIETEN[z]; and a particular instance of it is related by BONETUS[a]: but as it is probable that this supposed cause of the disorder is usually accompanied with fever, from which the insanity more immediately proceeds; it is most properly considered as a more remote cause, tending to excite the less remote one of fever, by the mediation of which it acts, and therefore to be referred to that head in the table of causes. If, however, at any time, it appears to give rise to insanity,

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[x] See a full account of this strange disease in BONETI Med. Septentr. Collat. lib. i. sect. 1, cap. iv. tom. i. p. 2.—And a case of insanity from this cause in SAUVAGESII Nosol. Method. Class viii. Gen. xix. 8. Dæmonomania Polonica. tom. iii. part. i. p. 400. —See also HOFFM. Med. Rat. Syst. tom. iii. sect. 1, cap. viii. De damnis ex cohibita cuticulari excretione. § 17, Oper. tom. i p. 336, et Med. Rat. Syst. tom. iv. part iv. cap. viii. § 11. Oper. tom, iii. p. 263

[y] De Mentis Morbis, ex Morbosa Sanguinis Circulatione ortis, § 12. Operum, Supplem. Secund. Part. Secund. p. 334. —"Præpostera sudoris fœtidi resiccatio."—HOFFM. Med. Rat. Syst. tom. iii, sect. 1. cap. ix. De vitiis ex turbatis sanguineis aliisque evacuationibus, § 21. Operum tom. i. p. 345.

[z] Comment. in BOERHAAVII Aph. § 1090.

[a] Med. Septentr. Collat. sect. 19, c, ix. tom. i. p. 188.

without

without producing fever; such an effect may possibly be accounted for in some of the ways in which I have endeavoured to account for the production of insanity by the suppression of old ulcers, and other preternatural, and habitual discharges. But it is, I believe, more frequently a symptom, than a direct cause of insanity: a dry and harsh skin, and great defect of perspiration, being a common attendant, in particular, of what has been usually termed hypochondriacal melancholy.

6. In the cases of *gout*, *erysipelas*, *herpes*, or *cutaneous eruptions* of various kinds, whose repulsion, and translation to the brain, are reckoned in the table, among the causes of insanity, it is taken for granted, that there is no discharge suppressed; or none of sufficient moment to produce a plethoric state, or otherwise to excite any material disturbance in the animal economy. Their repulsion appears capable, however, of giving occasion to insanity, either by disordering the system in general, and the first passages in particular; and producing indigestion, preternatural irritability, uneasy sensations, diminished tones, languor, and dejection; and affecting the brain in consequence of these disorders first excited in the alimentary canal, in the tones, in the state of irritability, and in the feelings; or by directly attacking the brain, and producing sudden, and

violent

violent insanity, by suddenly increasing the action of its capillary vessels, and thus giving rise to a sudden accumulation of blood in the head, and a violent and disorderly excitement of the nervous energy, and of the functions on whose due procedure the sound and orderly state of reason, imagination, and the affections depend.

Melancholy, we are told by SYDENHAM, is the almost inseparable companion of the gout[b]: and it is well known that indigestion, and all the consequences of a debilitated, and irritable state of the first passages, are its very common attendants; and as it is so often in a wandering, and unsettled state, and may fix in almost any part of the body, it is easy to conceive that it may produce insanity in both these ways.

But it must be acknowledged that, with regard to some of the supposed translations, whether of the gout, erysipelas, herpes, or other cutaneous eruptions, it may be questioned whether the insanity be not the cause of the repulsion, or disappearance of the disorder; rather than its translation to the brain the cause of the insanity. And the same may be said of many supposed instances of disordered mind from suppressed evacuations. Dr. MEAD[c] has observed that insanity not only

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[b] Tractat. de Podagra, Oper. Univers. p. 467.

[c] Medical Precepts and Cautions, chap. iii. Works, vol. iii. p. 42—44.

preserves

preserves the patient from other diseases, but when it seizes him actually labouring under them, lays such strong claim to the whole man, that it sometimes dispossesses the body of them: and relates a case of a dropsy cured, and of a consumption stopped for a time, by the coming on of insanity. I have frequently seen instances of it succeeding most of the causes enumerated under this article; have often met with it in persons subject to regular fits of the gout, who have not had the smallest appearance of their usual gouty paroxysms during very long periods of this disorder: and I have known a case in which an habitual asthma entirely disappeared during more than one fit of insanity, and returned as usual when the insanity ceased.

7. *Worms in the nostrils*, or *frontal sinuses*, as we learn from medical history, are another source of insanity; which they have been known to excite in the most violent degree. Cases of this sort are related by FERNELIUS, SCHNEIDER, and ANTONIUS DE POZZIS; and SAUVAGES has a species of mania founded upon these, and some other cases, of disease, and irritation, in the frontal sinuses, which he terms *mania ab hemicrania*; of all which I have already given a particular account in the history of *Appearances on Dissection*[d]. These facts throw a considerable light upon the

[d] Vide supra, vol. i. p. 257, Note (7) and (8).

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generation of insanity from causes seated out of the brain; and contribute, with various other painful diseases, to show the tendency of excessive pain, and irritation, to disorder the brain, and disturb the operation of the intellectual faculties.

Before I pass from the consideration of *bodily* to that of *mental causes*, it may be proper to say something concerning *hereditary predisposition*. Of this I have made no mention in the table of causes: since, supposing such a predisposition really to exist, it is probable that it is not confined to any one precise state of body, but is of a different nature in different cases. Indeed the term ought to be considered as merely relative, and as rather expressive of the peculiar origin, and generation, of a cause, than of its specific quality. It points out a general question relative to causes; not any one particular cause.

That the gout, scrophula, consumption of the lungs, insanity, and some other disorders, may be derived in some respect from our parents, seems so plainly proved by the frequent occurrence of striking, and indubitable facts, that, in a proper and limited sense, it cannot, I think be denied by any man of much experience and observation: and to refuse to diseases capable of being so communicated the title, which they have long possessed, of *hereditary diseases*, seems but objecting to a name, while we allow the reality of

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the thing which it is intended to signify. But that diseases of any sort are hereditary is to be admitted only in a very limited sense. They do not pass from parents to their offspring with the certainty of hereditary estates. A variety of circumstances, to us totally unknown, may probably in many instances, disturb the succession: or, at least, may prevent the actual appearance of the disease in some fortunate individual, notwithstanding that the latent disposition to it may be some way transmitted by him to his posterity. It is indeed a common remark, which appears to be verified by fact, that the disease of the parent may appear in some of the offspring, and not in others; or may lie dormant in the immediate descendant, and break out again in the next generation. Nor is this any thing more wonderful, particularly when the disorder exists only in one of the parents, than that in temper, or outward form, the children should variously resemble, some the father, some the mother, and some neither the one nor the other; or that some who have no likeness to either of the parents, should strikingly resemble some of their ancestors; and especially if we consider that hereditary disposition to disease, like similitude of mind or person, in a great measure depends on the original structure, and tones, of the solids, either in general, or in some particular parts; as of the brain, the lungs, the stomach and intestines, the blood-

blood-vessels, or the nerves; which may, or may not be communicated, or when communicated, may require habitual growth and nourishment, or strong occasional excitement, to give rise to the disease of the parent, or family. Hence it is, that the son may receive from his father a predisposition to insanity, by receiving something faulty in the mechanical structure of the brain, tending to disturb the operation of the mental functions; some weakness in the alimentary canal favourable to the generation of hypochondriacal melancholy; some unfortunate construction of the nervous system, or unhappy contexture of the solids, which may be productive of excessive irritability, and weakness of tones; a too active and ungovernable imagination; great timidity of temper; or some other bodily or mental imperfection; which, though not necessarily, may be very naturally, and probably, the causes of insanity; and may seldom fail to produce it, when assisted by the concurrence of any suitable exciting cause. With regard, indeed, to insanity, it is so often to be traced for generations back; is so often observed to spread, and diffuse itself, through many, and sometimes through almost all the branches of a family; and so often discovers itself in several individuals of the same family at the same time; that, whatever may be thought of the strict propriety of calling any disease hereditary, which is not certainly transmitted, and

inherited,

inherited, I cannot have the smallest hesitation in pronouncing that insanity is frequently communicated by parents to their children; and that, as there are family likenesses, and family tempers and dispositions, so this disorder, as well as the gout, and some others, affords abundant proof that there are family diseases. But, at the same time, I think it right to remark, for the comfort of those persons who are so unhappily circumstanced as to spring from insane families, or to be born of insane parents, that, as has been above observed, this disorder is not only not necessarily transmitted to all of the same family, or parents; but that the danger of its some time or other, seizing them, may be much diminished, by proper attention to avoid the influence of occasional causes, or of whatever may tend to strengthen the natural predisposition; and that there are instances, in which the whole of the immediate progeny have escaped the insanity of their parents.

(B) MENTAL CAUSES.

V. *Intense Application of Mind.*

All our mental operations, all our thoughts, passions, sensations, and exertions, are accompanied with corresponding motions, or vibrations*, of which, though the nature is obscure, the existence cannot be doubted; excited by some or other of the stimuli, of which I have already given an account, in the elementary, and inconceivably minute, medullary fibres, or other particles, of the exquisitely delicate structure of the brain; on the good order of whose curious, and hitherto inscrutable organization, it is probable that their proper, and undisturbed procedure, their regular and efficacious exertions, chiefly depend. These motions, and vibrations, like those of the air in the propagation of sound, are more perceptible and distinct, in proportion as they are less compounded, and multiplied, and of course, less interfere with, and interrupt each other; and are more or less vivid, in proportion as they more frequently recur, or are longer continued; and bear an exact relation in liveliness, and intensity,

* See Hartley on Man, Part i. chap. i. vol. i. p. 1—114.

to the thoughts, passions, sensations, and exertions, from which they proceed, or to which they give occasion.

Slight, and transitory, thoughts, passions, sensations, and exertions, as they but little interest the mind, so they make but feeble impressions, and excite but faint, and easy vibrations, in the medullary substance of the brain; produce no material, or permanent, change in its state; and if they weary the body, and waste the nervous power, they do it rather by their number, repetition, and duration, than by any violence of effort, or intenseness of action.

But close and severe thinking, strong and lively passions, acute and painful sensations, and vigorous or vehement exertions, are accompanied with such corresponding motions, or vibrations, in the brain and nerves, as are capable of exciting the most considerable, and violent commotions, and are often productive of the most extraordinary, as well as the most serious and permanent consequences. Some of these have been already mentioned, and many more will be enumerated in treating of the effects *of intense application of mind,—of inordinate passions,—and of too great activity of imagination,*—upon which I am now entering. In considering the former of these I am to inquire into the effects of too great application of the mind—

1. To

1. *To study.*—The mind cannot long continue in a sound state; or perform its functions with regularity and precision; unless, among other circumstances, the vibrations excited in the brain, by the action of external objects, or by the operations and emotions of the mind, be in general moderate, various, free and unobstructed. For strong and immoderate vibrations tend to obliterate, or to prevent the excitement of, others,—as the spreading circles of waves on the surface of a lake; originating from the immersion of a large body in its water, readily swallow up, and obliterate, the smaller ones occasioned by diminutive pebbles thrown within the circumference of their fluctuation;—or to excite such others only as happen accidentally to be intimately, or recently associated with them: and even magnify such associated vibrations; while they obstruct, or diminish, others with which they have no such connexion; and of course prevent the regular operations of the mind, and the natural progress, or excitement, of associated vibrations:—uniform and invariable vibrations, imply a limitation, and constraint, which are the reverse of that easy variety of excitement, which a sound state of brain, and mind, admits of, and requires:—and confined and obstructed vibrations imply such imperfection in the structure of the brain, or such habitually impeded, or such violent excitement, as are incompatible with the rectitude of those mental opera-

 tions

tions on which depend just reasoning, and a sound understanding.

But it is of the nature of close, and unremitted thinking, and especially if long continued, and confined to one, or a few objects, to excite intense, uniform, and limited vibrations; as well as in various other ways to impede the sound operations of the brain; and thus to tend to the generation of insanity, in a variety of ways:—for "when a person applies himself to any particular study, so as to fix his attention deeply on the ideas and terms belonging to it, and to be very little conversant in those of other branches of knowledge, it is commonly observed that he becomes narrow-minded, strongly persuaded of the truth and value of many things in his own particular study, which others think doubtful or false, or of little importance, and after some time subject to low spirits, and the hypochondriacal distemper."—For—" the perpetual recurrency of particular ideas and terms makes the vibrations belonging thereto become more than ordinarily vivid, converts feeble associations into strong ones, and enhances the secondary ideas of dignity and esteem which adhere to them, at the same time that all these things are diminished in respect of other ideas and terms, that are kept out of view; and which, if they were to recur in due proportion, would oppose and correct many associations in the particular study, which are made not according

ing to the reality of things; and keep down our exorbitant opinions of its importance. The same perpetual recurrency of vibrations, affecting one and the same part of the brain, in nearly one and the same manner, must irritate it at last, so as to enter the limits of pain, and approach to the states peculiar to fear, anxiety, despondency, peevishness, jealousy, and the rest of the tribe of hypochondriacal passions[b]."

All these effects are aggravated, and the danger of insanity is much more considerable, if, instead of one particular study, the attention of the mind be still more limited, be invariably rivetted to one, or to a few connected notions, and be for ever pacing in the same train of thoughts.

But whether the application of the mind be long and incessantly confined to one study, or to one particular train of thinking, or not, it has a tendency to produce similar effects, by its intensity; and at the same time to give occasion to such other changes in the brain, and in the whole body, as well in other ways, as by its intensity, as conspire to aggravate the effects just mentioned, and variously, and powerfully militate towards the total overthrow of the good order, and rectitude, of the mental operations. As will plainly appear when we attentively consider the several

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[b] HARTLEY on Man, vol. i. p. 397.

effects, and concomitants, of close and unremitted thinking. For, in the first place—

(*a*) When the mind has continued long in an intensely active state, and especially when it has been thus laboriously employed about one object, *it finds a difficulty in restraining its own activity, and in removing its attention from the object which has so long engaged it;* as is obvious to the experience of every man who has used himself to exact, and patient thinking. And this happens from the tendency which vibrations in the medullary substance of the brain, when once excited, have to continue; and from the increase of that tendency in proportion to their intenseness, and duration: just in the same manner as, when the same impression has been made for a long time upon the eyes or ears, or upon the common sense of feeling, the idea of it will be for a considerable time continued, and perpetually recurring, after the object which gave occasion to it is withdrawn, or ceases to act. Thus when we have long been exposed to a glaring light, we can scarcely see at all, for some time after exchanging it for the common light of day; when we have been long attending to a favourite song, or have been employed for a whole evening in dancing, it frequently happens that the air we have admired is for ever vibrating in our ears, or that the music and dancing are continued, in imagination, during

during the succeeding hours of repose; and, when we have been but for a few days at sea, the impression made on the brain, and nerves, by the motion of the ship, has sometimes been found to remain after we have been several days at land.

But the mind having once lost, in any great degree, the power of commanding, and regulating its own attention, of turning it with facility from one object to another, and of resisting the forcible, and continual recurrence, of any particular ideas, or notions, is apt at length to be so bewildered by incessantly brooding upon the same objects, as to become entirely passive, and to be carried along with the stream of that activity of the brain, and those violent vibrations, which itself had excited, but can no longer control, or resist; and, vibrations arising with little order, and succeeding one another by the slightest, and most accidental connexions, and possessing the whole attention of the thus fascinated, and unopposing mind, which is not now at liberty to look round, to bring into review, and to compare, the various stores collected by its former experience, the most slight, and accidental connexions, and the most unnatural, and fantastical associations, will acquire the force, and possess the authority, of the most powerful and just; vibrations originally derived from the impressions of external objects, and fortuitously renewed in their absence, will be as vivid, and receive the same credit, as when they were

 present;

present; and the mind will become the sport of a variety of absurd ideas, notions, and sensations, which have little or no proper relation to the real existence of external objects, or adequate foundation in former experience, or association, but are the natural and unavoidable result of such ungovernable activity, and inordinate vibrations: in a word, reason will be overpowered, and insanity will assume her place.

Indeed, as it is of the nature of insanity to dwell upon the same ideas, and notions; sometimes almost to the exclusion of every other; and to associate all that occur, however dissimilar and unconnected with the reigning ideas and notions; so intense application of mind to the same object, or objects, with little or no attention to others, and, as it too frequently happens, with the same disposition to draw the most dissimilar, and discordant objects, into an agreement with its favourite ideas, and notions, puts the mind into a state nearly resembling that of insanity; and must, also, in this way, be favourable to its production.

The danger of insanity from this cause will likewise be farther augmented by the weariness, and debility, with which the brain will be affected in consequence of the fatiguing uniformity of long and excessive exertion: for its vigour being exhausted by this incessant labour, its operations will be rendered languid, unsteady, and indecisive: effects,

effects, which when once produced, will not readily be overcome; and will tend to facilitate the approaches of insanity, by giving occasion to disorderly vibrations, and disturbing the due operation of the natural, and habitual associations.

It may farther be remarked that habits once acquired, whether bodily or mental, are not easily overcome; that the deviations from mental perfection, arising from the causes just mentioned, will readily become habitual, and not without difficulty be laid aside; and will thus facilitate the production, continuation, and recurrence of insanity.

Hence we may perceive how nearly ingenuity and folly, great mental power and imbecility of mind, genius and insanity, are allied to each other. But if unreasonable application to study may overturn the strongest mind; what are weak ones to expect from an imprudent indulgence in ths same excess?

(*b*) Intense study is accompanied with *an accelerated action of the small arteries of the brain.* For the employmeut of the brain in thinking, whatever be its specific nature, appears to be productive of an increased activity of these vessels; as is obvious from the heat, pain, sense of fullness, and giddiness of the head, and singing noise in the ears, some one or other of which are I believe universally, and all frequently perceived,

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after the mind has been for some time attentively engaged in the accurate investigation of any difficult, or abstruse subject. Now it may be considered as a general law of the animal machine, not only that whenever there is an accelerated velocity of the circulation, and especially when accompanied with a considerable degree of force, in the whole arterial system, as in fevers of various kinds, a disproportionate quantity of blood will be sent to, and a consequent accumulation of it take place in, the brain; whence it happens, among other causes, that fevers are so frequently attended with delirium; but that in whatever part of the machine accelerated oscillations of the capillary arteries take place, a plethoric state of the part will be the necessary consequence, till such accelerated oscillations shall have ceased, and the veins, whose activity does not appear to be increased in proportion to that of the arteries, shall have had time to restore the equilibrium.

This circumstance readily accounts for the bleeding at the nose, epileptic fits, lethargies, apoplexies, total want of sleep, delirious fevers, insanity and many other grievous complaints of the head, which have been known to accompany, or to succeed, intense study: and why, in particular, it should be the occasion of almost every species of delirious affection, will be rendered still more evident, if we consider the tendency of too close thinking

thinking to produce delirium, and insanity, in the way already explained in the preceding article.

The quickness of hearing in many insane persons, and especially in cases of recent insanity, and when it is bordering on the phrenitic state, seems to be an indication of a state of the brain, and its membranes, approaching to inflammation. And want of sleep is often a symptom, and the aggravating cause, of this state.

(c) It is of the nature of intense application, and activity, of mind, *to prevent sleep;* the want of which is a natural effect of that imbecility of the mind, which renders it incapable of withdrawing its thoughts, without great difficulty, from objects which much engage its attention; and is a proof, as well as farther cause, of turgescency, active vibrations, and an approach towards an inflammatory state, in the brain: and, if long continued, scarcely any thing more powerfully tends to disturb the imagination, excite inflammation in the brain, and produce every kind and degree of delirium, and insanity. How this happens will appear exceedingly obvious, if we examine into the nature, causes, and effects of sleep.

In sleep the instruments of sensation, and voluntary motion, whose influence and operation depend upon their being in a state to act upon, and be actuated by the mind, are at rest; the mind

mind having, during the repose of the body, little or no concern with the nerves: but the action of the heart and arteries, respiration, the peristaltic motion of the stomach and intestines, nutrition, secretion, excretion so far as voluntary motion is unconcerned, and the action of the sphincter muscles, continue their exertions; though with less force, and vigour, than when the body is awake. It is plain, therefore, that in the time of sleep irritability is diminished, and that the connexion between the mind, and the organs of sensation, and of voluntary motion, is almost entirely suspended: in a word, that the vital and natural functions are carried on, at this period, for the most part, by irritability only.

For it has been before observed[c], that "the nervous power, or property, of irritability, is capable of acting without influencing, or being influenced by, the mind; without the mediation either of sensation or volition; and is sufficient of itself for the performance of those vital, and natural actions, which can be performed without the agency of any of the voluntary muscles; as the circulation of the blood, the secretions, absorption, perspiration, and the like. That, when excited, therefore, by the natural stimuli, only to a certain degree, no sensation is produced; most of the vital and natural actions being capable of

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[c] See above, p. 41.

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proceeding without it. But that when excited by these in an unusual, or by any of the other corporeal stimuli, in a greater degree, it acts upon the mind, and sensation is excited of such a kind as corresponds to the cause of its excitement."

This may lead us to account for the suspension, in a great measure, of the powers of voluntary motion, and sensation, during sleep; with only the diminution of those of the action of the heart, and arteries, and of the other vital and natural operations.

It is certain that the increase of irritability, the pressure and agitation of muscular motion, and the influence of a great variety of external and internal stimuli, when we are awake, invigorate and quicken the action of the heart and arteries, and augment the quantity of blood sent to the brain. An accumulation, therefore, of blood in the veins of the head will take place in the day time, and will be gradually increasing; while on the other hand, the nervous power will be insensibly wasting; till in the evening, the accumulation having acquired such a magnitude as to compress the brain to a certain degree, and the nervous power being so wasted as to produce great languor, and inability of exertion without powerful stimulation, irritability will be diminished, both from sanguineous accumulation and pressure, and from nervous inanition; the velocity of the

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circulation will begin to decline; the nerves will become incapable of conveying sensation from external objects to the mind, or voluntary motion from the mind to the muscles; and this state will be what we call sleep; in which the commerce between the mind and body is much diminished, and sometimes appears to be almost entirely suspended.

During the state of sleep the expence of nervous power nearly ceasing, and its reparation going on, perhaps even more perfectly than in our waking hours, the waste of it incurred in the day time is gradually made up, and the blood circulating much more slowly during sleep, the veins of the head return it from thence faster than it is supplied by the now languid action of the arteries, and insensibly re-establish the equilibrium which their more rapid motion had destroyed in the course of the day; and the spirits being in this way recruited, and the compression of the brain taken off, sleep quits us for a season, and in restoring us to activity, and the business of life, leaves us exposed to those causes which, after a short interval of waking, and active animation, will return us back, to experience again the benefit of his salutary influence.

The requisites, therefore, to sleep being, with great probability, supposed to be a waste of nervous power,—a moderate compression of the brain,—a consequently slower and more languid

action of the arterial system than when we are awake, and a general diminution of irritability to a certain degree;—it is easy to conceive why sensation, and muscular motion, may be nearly suspended while we sleep; and yet those vital, and natural processes, which depend solely upon irritability, proceed, in the mean time, with regularity, and effect.

These circumstances usually take place in the evening of the day; the coming on of darkness, and the stillness of the night, by withdrawing the stimulation of light, and noise, giving aid to the operation of these internal causes of repose.

And as their influence is promoted by the absence of common stimuli; so it may be prevented by the presence of uncommon ones.

For strong stimuli will excite sensation, and give to the mind the power of exciting motion, even in a torpid state of irritability; and vigorous excitement will readily give temporary, and sometimes even long-continued strength and activity, when the waste of nervous power, and unusual watching, might seem to proclaim the return of debility and torpor, and to demand the refreshment of sleep; the excess of the stimulus counterbalancing the defect of irritability, and perhaps, by its influence upon the brain, furnishing it for a time with fresh supplies.

Now intense mental action is *such* a stimulus, and, though it exceedingly wastes the spirits, and

and promotes the accumulation of blood in the brain, is yet one of the most powerful enemies we know to sleep. Paradoxical as this may seem, it may, I think be accounted for; and the explanation of it will prepare the way to account for the agency of *watching* in the production of insanity.

The increased action of the small arteries of the brain, which always accompanies intense thinking, is a powerful stimulus to that organ: and a general fullness of the vessels of the brain, the natural consequence of their increased action, the increased action of the small arteries from whence it took its rise still continuing, when existing only to a certain degree, is also a powerful stimulus: compression of the brain, within certain limits, probably acting as a stimulus by the uneasy sensation which it excites; and the increased action of the capillary arteries, and stimulating fullness of the vessels of the brain, possibly promoting in some degree the generation of nervous power. Intense thinking may, therefore, drive away sleep, notwithstanding that it wastes the nervous power in certain respects, and gives occasion to compression of the brain.

The increased activity of the small arteries of the brain, excited by intense thinking, having carried the compression of that organ beyond the boundaries of natural sleep; and being kept up, and even aggravated, by the irritation arising

ing from that compression, as well as by the excitement produced in the brain by their own accelerated action, and by the continuation of that intense thinking from which it at first originated, and which these various effects of its own operation have now rendered the mind incapable of restraining; an approach to a state of inflammation in the brain will commence; and even an actual inflammation may come on; and in either way delirium may be produced; and, as the inflammatory affection of the brain is more or less violent, death, or insanity, may be the unhappy termination: or the accumulation of the blood in the vessels, and the consequent compression, increasing, a lethargic, and almost apoplectic sleep, may take place; which may either terminate fatally, or may leave the brain so impaired as never perfectly to recover its sound and healthful state, or be a fit instrument for the rational exercise of the mental operations: but should the brain happily resist the violence done to it by intense and unseasonable exertion, without receiving any essential injury, a deep, and long-continued sleep, may restore it to its former tone, and repair the waste of immoderate activity and watching.

A very curious instance of the extraordinary and pernicious effects of intense thinking, in preventing sleep, is related by BOERHAAVE; the circumstances of which are strikingly analogous with

with the doctrine here advanced. He tells us[d] "that having imprudently given way to thinking, on a very serious matter, from the morning early, till the setting of the sun, of a long summer's day, he did not once close his eyes, day or night, for six weeks after; during all which time he was perfectly indifferent to every thing, and nothing whatever affected him. That this state was succeeded by pain all over his body; a sign, as he observes, that the animal spirits, which were now recruited were returning into their wonted channels, and again diffusing themselves over every part of the body."

From this account of the effects of thinking so as to put off sleep, we may see the danger of study protracted into the night, and encroaching much upon the hours of rest, even where the application of the mind is not very intense; since, at least, it exhausts the body by fatigue, and robs it of the seasonable, and necessary repair of sleep; and by resisting the natural and salutary tendency to the refreshment of repose, may, by thus doing violence to nature, besides aggravating the evil tendency of too much exercise of the brain, give occasion to a variety of other bad consequences, highly injurious to health, and comfort; and

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[d] Prælect. Academic. in proprias Institutiones Rei Medicæ, tom. vii. p. 141.

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which may prepare the way to the introduction of insanity by other inlets, which, though more remote and less sudden, may not be free from considerable danger; the preclusion of which may merit our most serious attention. Of these more remote ways by which too diligent application to study may introduce insanity, I come now to take some notice; having hitherto chiefly attended to the direct, and immediate operation, of intense study upon the brain, by which its functions may be disturbed, and this disorder be produced. For—

(*d*) It is farther to be observed, that too much, and intense thinking, besides favouring the production of insanity by its immediate effects upon the brain, has a remote and reflex influence, as has been just hinted, which powerfully tends to bring about the same unhappy consequences: since, in various ways, it weakens the stomach, and intestines, and the whole nervous system, as well as the brain itself; the debility of all which are powerful causes of hysterical, and hypochondriacal symptoms, and, in the end, of insanity. And this it does (1), both of itself, and by its own direct influence upon these parts; and (2) by the assistance, and conspiration, of various concomitant circumstances.

(1). Intense thinking tends remotely to the

introduction of insanity, by its immediate influence upon the nervous system. For (*a*), in the first place, it wastes the nervous power, fatigues excessively, and, if long persisted in, of course permanently debilitates the body in a great degree, and impairs all the functions on which healthful tones, and vigour of mind, depend. It is an observation of VAN SWIETEN that a "philosopher, after he has been immersed in profound meditation for several hours, feels himself more exhausted, than he would do if he had been using, for the same space of time, the most violent bodily exercise: all the functions of the brain depending upon the finest fluid in the body, and consuming it by their operation[c]." For study while it fatigues, debilitates, by disturbing the other functions of the brain, by impairing all the vital and natural actions, and by checking the supply, as well as by wasting the fund, of the nervous power; whereas exercise, while it fatigues, and wastes the nervous power, invigorates, by promoting the vital and natural actions, and thus overpaying, if not immoderate, the waste of power which the exertion of the muscles had incurred. It is, therefore, obvious how intense study may, in this way, produce debility, and all its tormenting nervous consequences; how it may occasion want of appetite, nausea, great

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[c] Comment. in BOERHAAV. Aph. § 1093, tom. iii. p. 456.

weakness

weakness of the stomach, and tremor, so familiar to literary men; how it may give rise to the singing noise in the ears, which is often very troublesome when the mind has been long, and closely employed, and especially on a momentary cessation of intense thinking, so as sometimes almost to excite a vertigo; and how it may introduce a variety of spasmodic, and hysterical symptoms, and the whole train of distressful feelings and apprehensions accompanying the hypochondriacal disease. But this is not all, for (*b*), in the next place, intense thinking, as has been already noticed[f], diminishes irritability, and produces a torpid state of the nervous power; partly perhaps, by withdrawing in a great measure from the nervous system in general, the stimulus of the mind; and partly by disturbing, and impeding, the other functions of the brain. For it makes the body almost insensible to those natural and other stimuli, internal and external, which by their irritation give life, and vigour, to the nervous power; suffers it to languish for want of excitement; and thus gives occasion to torpor, and debility, in all the vital and natural motions, crudity in the first passages, and the other obvious consequences both in the body and mind. And that intense thinking should disturb the other functions of the brain seems highly probable,

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[f] See above, p. 40, and 57.

if it be considered that, while the mind is thus busily occupied, the brain is in a state of activity corresponding to the intense activity of the mind, and that the unusual motions and vibrations, thus excited in it, will be likely to impede those which are requisite to the due performance of its other functions, on which the vigour and well-being of the vital and natural operations, and the general health of the body, depend. And besides (c) the constant exertion of the brain in thinking too intensely will weaken that organ itself by excess of exercise,—by disturbing the performance of its other functions,—and by weakening the body in general, with which the brain must consequently suffer; and the brain being debilitated, the faculties of the mind will lose their vigour; the memory, and attention, will fail, reason will be obscured, imagination will be irregular, its suggestions will be too much credited, a thousand vain fears and absurd fancies will rise out of the ruins of right reason and sound judgment, and the man who, as TISSOT[g] observes, would, a few months before, "have stood unhurt amidst a falling world," will now become the sport of every childish whim, and groundless apprehension.

(2) Intense thinking tends to give occasion to

[g] Serm. Inaug. de Valetud. Literator, p. 15.

insanity,

insanity, by several of its usual concomitants; as (*a*) by the activity of a sedentary life; (*b*) by the common custom of literary men of studying immediately after meals, and especially if the meals have been hearty; (*c*) by late hours, and want of sleep; (*d*) by the solitude, gloominess, and moping, which often attend upon a close application to study; and (*e*) by the anxiety, vexation, disappointment, dejection, and other passions which attend any particular study, or accidentally, from some external cause, intrude upon the student, and vex, and agitate a mind already too much, and often not very agreeably, exercised. The influence of all which in laying a foundation for insanity is too obvious to need illustration.

2. To *business*, or *schemes*, of any kind, that require great and unremitted attention, or much exertion of genius.—Great application of mind, and intense thinking, whether to the studies of philosophy, and literature, or to business, or schemes of any sort, will have the same effects, where the attention and exertion of mind, and other circumstances, are the same. Where business, therefore, or scheming, are accompanied with a sedentary life, their effects will be so far similar to those of study. But where they are connected with bodily exercise, and an active intercourse with the world, as not unfrequently happens, their tendency to give occasion to insanity will so

far be diminished. But, on the other hand, the hopes, fears, vexations, and disappointments, which are the too common companions of business, and scheming, and especially when united to intense thinking, are such powerful causes of insanity, that we much more frequently find it originating from great attention to these pursuits, than from excessive application to the inquiries of the learned. In the seminaries of literature it may probably be otherwise; and the greater proportion of men of business, out of these seminaries, in a mercantile country like this, may be alledged as a reason why we see more insane tradesmen, and merchants, than men of learning, and philosophers; and possibly, with truth. But whatever be the cause, the fact is, I believe, as I have represented it. Another cause why we more commonly meet with instances of insanity which have originated from intense application to business and scheming, than to learned and philosophical studies, may be, that watching is, perhaps, a more frequent attendant upon the anxieties, and vexations, of the former, than upon the mere application of mind to study; which is rarely accompanied with any great degree of these passions, excepting when it is combined with prospects of gain, and emolument, and degenerates into business, and scheming. How intense application of mind operates, in these cases, will be obvious from what has already been

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pretty fully explained of the effects of its application to learning, and philosophy; and the operation of the passions, which has before been explained in part, will be more copiously illustrated when I come to treat professedly of the passions as causes of insanity. I now proceed to consider the production of this disorder by—

3. Any sort of *employment* of the *mind* which may keep it for a long time in an active and *wakeful* state. A long want of sleep, from whatever cause it may originate, is favourable to the production of delirium, and insanity; since it must put the brain into a state of activity, and plenitude, which we have already shown to dispose to them, when considering the effects of intense thinking, and study. Besides, therefore, those mental operations before mentioned, whatever exercise of the mind is sufficient to counteract the accustomed propensity of the body to sleep, and to keep it for a long time in a state of vigilance, will not only injure the body, but, both by its immediate action upon the brain, and by the remote consequences of such action, as well as by other unavoidable, incidental circumstances, much endanger the health of the mind. Insanity, therefore, may be the consequence of long watching, arising from great attention of mind, not only to study, business, or schemes, of any kind, but to whatever else may demand, or call forth,

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its waking exertions; whether the employment of the mind which gives rise to them be confined to one, or divide itself among a variety of objects; whether it be free from passion of any sort, excepting the mere desire to keep awake, or be accompanied with, or caused by, anxiety, or any other passion whatever, either painful, or pleasing; all of which tend, more or less, to give occasion to insanity, in proportion as the want of sleep is continued for a longer or shorter time; as the attention of mind is more or less intense, or more or less confined to one object; as it is with, or without, the agitation of passions; and according to the nature, and violence of the passions which may happen to accompany it.

Hence insanity may derive its origin from long-continued sitting up, and unremitted attention, with little or no sleep, in nursing the sick; of which I have known an instance: from severe watching without intermission in towns that are besieged: from an inability to sleep owing to the agitation of some unconquerable passion: or from any other causes, of which there is a great variety that require, or may occasion, long and unremitted wakefulness.

Instances of the production of insanity by every mode of too intense application of mind, which has been mentioned in this fifth division of the causes, are numerous and affecting; and ought to warn the student against the intemperate pursuit even of

of knowledge itself, and to teach him that exercise of mind, like that of the body, when violent and excessive, may weaken and destroy the health which it was intended to invigorate and improve; to guard the man of business, and the schemer, against the too eager prosecution of their favourite objects; and to convince all mankind of the danger of persevering in any sort of employment of the mind which may keep it for a long time in an active, and wakeful, state.

VI. *Passions of various kinds; when sudden, violent, or habitual.*

The passions were undoubtedly implanted in our nature for wise, and beneficent, purposes; but the folly of man has perverted them to the most absurd, and pernicious. They are the servants, not the masters; the means, under the guidance of reason, not the end, of human happiness: and to fulfil their appointed destination, in promoting the well being of mankind, they should be various, gentle, calm, and manageable; and only in such a degree indulged, as is proportioned to the attainment of some reasonable and valuable purpose.

According to the doctrine of the stoics, and other philosophers, the passions are founded upon our notions, or opinions, of *good* and *evil*, whether present or absent. If we form a proper judg-

judgment, and estimation, of the things, and occurrences, of this life, we shall never be immoderately depressed by the evil, nor elated by the good, either present or impending, in prospect or in the enjoyment. But if we suffer ourselves to judge irrationally of things, and occurrences; and value them, not according to their real nature, and importance to human happiness, but according to those erroneous notions, and opinions, which we may have been led imprudently to form of them, by the misguidance of appetites, prejudices, and irrational associations; we shall then be liable to experience all those excesses of passion, which will inevitably mar the happiness which we seek after; and may, possibly, in one way or other, drive us into madness.

If, yielding thus to the impulse of the appetites, prejudices, and irrational associations, of whatever kind, we permit ourselves to be elated with the possession of what we esteem present, or to be immoderately impelled to the future acquisition of what we esteem absent good; we experience, in the former case, the passion of turbulent *joy*; and, in the latter, of uneasy *desire*: if we are alarmed with the threats of absent evil, we suffer from the passion of *fear*; and, if we are oppressed with the weight of present evil, we sink under the agonies of *distress*.

Wise men, therefore, allow themselves to be but little affected by any of the passions. But as

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we are all impelled by Nature to avoid whatever appears to us to be evil, and to choose whatever appears to be good;—so a wise man is pleased with present good, and may will to obtain the absent; is careful to avoid probable or impending evil, and patiently endures the pressure of the present: but his hopes and fears, his pleasures and his pains, are always sober, and moderate, and directed by reason to those good ends for which the benevolent Author of our nature designed them.

But the bulk of mankind, unhappily for themselves, are not wise; and indulge, to their own unspeakable hurt, every kind of irrational and ungovernable passion. They suffer themselves to be transported with joy, and dissolved in pleasure, at the obtaining, and in the fruition of any present good; and to be hurried on and tormented with the desire of possessing some absent one. They are terrified with the fear of approaching or impending evil; and, with a pusillanimity unworthy of rational beings, sink under the weight of present evil, and are afflicted beyond measure with that which a becoming patience, and fortitude, and more rational views of good and ill, would annihilate, or render tolerable. For, indeed, we may truly say with HORACE, of all those things which are usually esteemed the most grievous evils in this life, and of which the wisest of us cannot but have some feeling,—

'Tis

'Tis hard: but patience must endure,
And sooth the woes it cannot cure[h]:

Now as every passion is accompanied with a correspondent state of body, as has been already observed, produced by the intervention of the brain and nerves; and every such state of body, nerves, and brain, is accompanied with, or at least tends to promote, a correspondent passion:—

And as every passion, in proportion to its degree of violence, consists in an active state of the mind, and brain, in which the objects of the present passion are incessantly recurring to the imagination, become peculiarly interesting, and with difficulty give way to ideas of a different nature:—

And as vigorous, and intense vibrations, once excited in the brain, are disposed to suppress, or obscure, all others that are not immediately connected with them; to continue with obstinate pertinacity; and readily to be renewed, on the slightest occasion, while the impression of them remains recent; and, in short, to produce such a change in the state of the brain, and nerves, as to give a preternatural facility to their excite-

[h] Durum. Sed levius fit patientia,
Quicquid corrigere est nefas.

Carminum, lib. i. Od. xxiv. v. 19.

ment,

ment, and a strong propensity to their becoming habitual; and as an active state of the brain, which is thus intense, uniform, unceasing, and habitual, is exceedingly apt to disorder the reasoning faculties; as has been shown above in treating of intense thinking:—

And as, therefore, the active state of the ideas, and vibrations, of the mind and brain, accompanying the passions, will of course increase by indulgence,—grow by degrees into a habit,—and at length take the sole possession of them, and exclude, or draw into their vortex, every other idea and vibration:—

It appears evident, from these considerations, that the passions must be powerful causes of insanity, which is itself nothing more than such a state of mind, as I have now described, become habitual, and permanent.

When insanity originates from the passions, it is usually, at first, only notional: but such intense, and uniform activity of mind, generally, sooner or later, in proportion to its nature and violence, produces ideal insanity, and often the very excess of phrensy.

Imaginary good and evil, present or absent, as I have remarked above, are considered by the antient Stoics, as the sources of all the passions. But as they esteem the passions to be enemies to real happiness, and think it unbecoming a wise man to be, in any degree, influenced by them; they

they have given another title to those affections which a wise man may feel towards good and evil, and have denominated them *constantiæ*, or constancies; a term which has not been adopted, as I can find, into our language, and which conveys an idea for which I know of no appropriate English appellation. They consist in a certain strength, firmness, and perseverance of mind, in forming a true estimation of the value of things, which will not suffer it to be improperly affected by any of the objects of the passions; and they receive different names, accordingly as they are most allied to one, or to another of them. From present good they allow a wise man to feel satisfaction, and they acknowledge the propriety of a volition to obtain any absent good; nor do they blame a prudent attention to the avoidance of any threatening evil. Thus the passion of joy is, in a wise man, nothing more than the constancy of satisfaction;—desire is mere volition;—fear is only caution;—and distress has no corresponding constancy. They might, I think, very justly have made one of patience under the pressure of present evil: but as they will not allow that a wise man can experience evil, so they will not permit him to be any way affected by the presence of such things as even the wisest of men, who have not adopted this chimerical notion of the stoics, must confess that they feel to be evils, though they may have learned to bear them, as they

they ought, with becoming patience, and resignation.

Other writers, therefore, both ancient, and modern, but especially the moderns, sensible of this absurdity into which the stoical principles necessarily led them, and yielding themselves to be guided by the natural feelings of the human heart, have judiciously granted that the things, and occurrences, of this life, may be good or evil to the wise man, as well as to the fool: that the former, therefore, may very consistently, and philosophically, acknowledge those feelings which he cannot avoid: and that the only difference, in these respects, between him and the latter is, that while the fool feels immoderately, the wise man is but gently, and momentarily, affected; and that while the one feels only real good and evil, the other is agitated, and distracted, by a thousand things, as untutored fancy and irrational prejudices direct him, which in their own nature are neither good nor evil.

Some moderns, among whom are the celebrated French philosopher DES-CARTES, and our very ingenious countryman the elegant author of the Philosophical Inquiry into the Origin of our Ideas of the Sublime and Beautiful, have added, and I think not without reason, though it might possibly be resolved into one of those already mentioned, another source of passion, which is *novelty*; and the principal passion of which it is the

the object is *curiosity*, according to MR. BURKE; and according to DES-CARTES, *admiration*; passions, which, when properly indulged, are the sources of a real, innocent, animated, and beneficial pleasure; but when indulged without moderation, or restraint, will often be the parents of much misconduct, anxiety, and distress.

Taking these, therefore, into the number, the principal passions are six,—*curiosity*,—*admiration*,—*joy* or *pleasure*,—*desire*,—*distress*,—and *fear*.

The various modifications of these principal passions are almost endless. I shall here enumerate only a few of the most considerable, which I shall do in the order of the principal passions out of which they grow; and shall afterwards, in the same order, describe them at large, and shall especially dwell upon such of them as most powerfully, or characteristically, affect both the mind and body.

The most considerable of the passions, principal, or derived, seem to be—*curiosity*, admiration, wonder, surprise, astonishment;—*joy*, enthusiasm or religious joy, vanity, malevolence;—*desire*, hope, anger, hatred, love, ambition, avarice;—*distress*, envy, pity, grief, dejection, despair;—*fear*, consternation, terror, shame, suspicion, jealousy, anxiety, and religious fear arising from superstition, or enthusiasm.

The passions of the FIRST CLASS have for their object *novelty*; towards which as they variously

relate,

relate, they receive the several names of—*curiosity*, admiration, wonder, surprise, and astonishment.

When we are simply impelled by the desire of experiencing something new, the passion we feel, if so gentle an emotion deserves the name of a passion, is merely *curiosity*:—if, on the occurrence of new objects we, at once, perceive their relations to things which we already know, and there is something uncommon, and beautiful, in those relations, and which shows evident marks of wisdom, power, or benevolence; or if, though when they first presented themselves we were not sensible of these relations, yet we readily perceive them after a more exact attention, or after they have been properly explained to us by others to whom they were less obscure; we then feel the passion of *admiration*:—but if such objects, besides being new, appear to have relations dissimilar from any which we have hitherto experienced, and we can form no just and adequate conception, perhaps not even a probable conjecture, of their causes; and especially if they appear to be quite inconsistent with what we usually experience: we are then affected with *wonder*:—if such objects appear suddenly and unaccountably, we are thrown into *surprise*:—and if, besides all this, there be any thing vast, or terrible, or daring, in them, we are struck with *astonishment* or *amazement*.

The passions which spring from this source, when pure and unmixed, produce scarcely any commotion either in the mind or body; and are, therefore, when in that state, but little allied to insanity: but as, when much indulged, they seldom long remain so, they readily become, by combining with, and aggravating, the other passions, a fruitful cause of that disorder.

For though those affections of the mind which have novelty for their object, seem scarcely to deserve the name of passions; especially curiosity, admiration, and wonder; and the two latter, surprise and astonishment, may be suspected to have something of an idea of good or evil mixed with the novelty of the object, whenever they excite any great commotion; yet this, at least, is very certain, that novelty, in the various forms above described, much heightens our relish of good, and our abhorrence of evil; that it enlivens, or aggravates, the passions originating from these causes, with which it happens to be connected; and that long familiarity diminishes the effects both of the one and the other, and softens the passions to which they are fitted to give occasion:—so that though the universality of the position may be questioned, yet it must be acknowledged that there is much truth in the observation of the very ingenious, and elegant writer, above-mentioned, that "some degree of novelty must be one of the materials in every in-

strument

strument which works upon the mind; and curiosity blends itself more or less with all our passions[c]."

Notwithstanding that the stoics considered our notions of good and evil as the sole foundation of the passions, yet they could not but be well aware of the power of novelty in forming, and heightening, those notions, and consequently the passions which arise out of them: and it was, probably, in part, with a view to this influence of novelty, in mixing with, and increasing, all the other passions; as well as in exciting a restless uneasiness and dissatisfaction with present objects, and a fruitless search after absent ones, which, losing their novelty, again become stale, and vile, and tasteless in their turn; and thus throwing an imaginary value on things to which they had in their own nature no title; that they so much blame a silly admiration, and false estimate, of things, as the very bane of human happiness; and that HORACE truly says, in one of his Epistles—

> Not to admire, is of all means the best,
> The only means to make and keep us blest[d].

The

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[c] A Philosophical Inquiry into the Origin of our Ideas of the Sublime and Beautiful, p. 2.

[d] Nil admirari prope res est una, Numici,
Solaque quæ possit facere et servare beatum.
Epist. vi. lib. i.

 There

The other, or SECOND CLASS of passions, consists of those which have *good* or *evil* for their object; and comprehends all the remaining passions above enumerated; besides many more,—as complacency, satisfaction, security, confidence,—favour, benevolence, friendship, devotion, gratitude, aversion, malice, scorn, derision, emulation, glory, courage, audacity,—dissatisfaction, disapprobation, remorse, repentance,—doubt, hesitation, irresolution, and pusillanimity;—which, being modifications, and compositions, of the

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There are some very judicious reflections in the Spectator on the influence of novelty, and admiration, on all the passions.—"And as novelty is of a very powerful, so of a most extensive influence. Moralists have long since observed it to be a source of admiration, which lessens in proportion to our familiarity with objects, and, upon a thorough acquaintance, is utterly extinguished. But I think it hath not been so commonly remarked, that all the other passions depend considerably on the same circumstances. What is it but novelty that awakens desire, enhances delight, kindles anger, provokes envy, inspires horror? To this cause we must ascribe it, that love languishes with fruition, and friendship is recommended by intervals of absence: hence monsters, by use, are beheld without loathing, and the most enchanting beauty without rapture. That emotion of the spirits in which passion consists, is usually the effect of surprise, and as long as it continues, heightens the agreeable or disagreeable qualities of its object; but as this emotion ceases (and it ceases with the novelty) things appear in another light, and affect us even less than might be expected from their proper energy, for having moved us too much before."—Vol. viii. No. 626.

other

other passions already mentioned; or exciting but little commotion, bodily or mental; do not merit any particular attention here; as they have either little, or no agency, in the production of insanity, or none but what will readily be understood in consequence of what will be said of the principal, and leading, passions.

Joy is that emotion with which the mind is affected by the recent acquisition, and present possession, of something which it esteems valuable, and worthy of being received and enjoyed with a degree of pleasing emotion, greater or less, in proportion to its estimation of the magnitude of the good acquired, and to the greater or less desire, or expectation, it had entertained of acquiring it.

When the acquisition, and possession, of what is esteemed good, only excites in the mind an emotion of satisfaction, or rational pleasure, it is as friendly to health as it is conducive to happiness; and an habitual disposition, which it is possible to cultivate, in almost every station of life, to the indulgence of such a rational satisfaction; call it pleasure, ease, content, or what you will; not only invigorates the bodily constitution, but strengthens the faculties of the mind, and tends to produce a healthful, and cheerful, longevity. By exciting gentle, pleasing, and animating, vibrations, it tends to give a due degree of vascular and muscular tone, and insensibly to restore the

elastic tone, which may have been injured, and diminished, by disease; and consequently to give due force and activity to the whole vascular system, to strengthen the stomach and bowels, to promote appetite, digestion, insensible perspiration, and all the other healthful secretions, and excretions; and to invigorate every faculty of body and mind[k].

But tumultuous, excessive, and irrational joy, is as injurious to the body and mind, as a just and grateful satisfaction is salutary to both. It

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[k] "Anger and joy increase, and fear and sadness lessen, both perspiration and urine. The soul, which has great power over the body by virtue of the æther, when it is made uneasy by the passion of anger, raises a strong vibrating motion in the æther within its sensorium, which motion is propagated through the nerves to all parts of the body. This strong motion in the membranes of the heart quickens its contraction and dilatation, and thereby quickens the contraction and dilatation of the blood-vessels and secerning ducts, and of consequence increases the discharges of perspiration and urine, and that more or less in proportion to the strength and continuance of the passion.—Joy affects these discharges, in like manner as anger. In the passions of fear and sorrow, perspiration and urine are lessened, by a diminution of the vibrating motion of the æther, occasioned by a depression of the power of the will and activity of the soul, under these passions. Hence joy and anger increase, and fear and sorrow lessen, perspiration and urine, and the weight of the body. And other passions, as they partake of these, will affect the discharges and weight of the body in like manner."—*Dr.* BRYAN ROBINSON, *on the Food and Discharges of Human Bodies*, p. 77.

produces

produces a sudden increase of tone, and irritability, a quick and often irregular circulation, and a general determination to the surface of the body; an increase of perspiration, and other secretions, of heat, and of colour; a peculiarly increased activity of the vessels of the head and brain, a highly active state of imagination, great heat of the head, and flushing of the face. From the increased irritability, from the quick succession of pleasing ideas, from the accelerated motion of the small vessels of the head and brain, it is usually attended with benevolence and generosity, and often with tenderness, and tears; and if sudden, violent, or durable, has been known to produce fainting, fevers, insanity, and sudden death.—In producing insanity it seems to be not less powerful than even grief. And it is remarkable that, as we are told by Dr. MEAD[1], on the authority of Dr. HALE, who was at that time physician to Bethlehem-hospital, that of the great number of persons who became insane in consequence of their connexions with the South-sea Company, in the year 1720, there was a much larger proportion of those successful adventurers whom fortune had favoured with the sudden acquisition of immense riches, than of those who were completely ruined by that iniquitous imposition.

By *religious joy* I do not mean that calm, but

[1] Medical Precepts and Cautions, chap. iii. vol. iii. p. 46.

ineffable

ineffable satisfaction, which is felt by those persons, whose lives are a series of good actions, inspired by genuine virtue and true piety; and who are happy in the consciousness of the general goodness of their conduct, and of the rectitude of their intentions; and are persuaded that, if they have not merited, they shall nevertheless certainly obtain, the favour and protection of a benevolent Deity, both in this life, and in the next;—but that wild, and ill grounded joy, which is often experienced by people of weak minds, and narrow views; who have conceived an overweening opinion of their own sanctity, or faith; or would gladly arrive at heaven by any merit but their own; and who, having learned the irrational jargon of some enthusiastic sect, fancy themselves the only true believers, the saints, the elect, the favourites, and sometimes even the inspired of GOD*, while under the influence of religious

* "We see," says LOCKE, "that in all ages, men, in whom melancholy has mixed with devotion, or whose conceit of themselves has raised them into an opinion of a great familiarity with GOD, and a nearer admittance to his favour, than is afforded to others, have often flattered themselves with a persuasion of an immediate intercourse with the Deity, and frequent communications with the Divine Spirit. GOD I own cannot be denied to be able to enlighten the understanding by a ray darted into the mind immediately from the fountain of light. This they understand he has promised to do, and who then has so good a title to expect it, as those who are his peculiar people, chosen by him, and depending upon him?

§ 6. "Their

religious enthusiasm and intoxication; by which, however, they are not unfrequently deserted; for a state of intoxication will sometimes be succeeded by languor and depression of spirits; and, in its stead, are harassed, and tormented, with religious fear, the gloom of despondency, and the horrors of despair, hereafter to be described.

This religious joy, or enthusiasm, produces effects on the body similar to those which are occasioned by any other kind of joy; but, as it is seldom calm, and never rational, and too often interrupted by religious fear, its salutary operation is rarely very conspicuous; and, on the other hand, as it is not commonly so sudden, or so violent, as joy from some other sources,

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§ 6. "Their minds being thus prepared, whatever groundless opinion comes to settle itself strongly in their fancies, is an illumination from the Spirit of God, and presently of divine authority: and whatsoever odd action they find in themselves a strong inclination to do, that impulse is concluded to be a call or direction from heaven, and must be obeyed; it is a commission from above, and they cannot err in executing it.

§ 7. "This I take to be properly enthusiasm, which, though founded neither on reason nor divine revelation, but rising from the conceits of a warmed or overweening brain, works yet, where it once gets footing, more powerfully on the persuasions and actions of men, than either of those two, or both together: men being most forwardly obedient to the impulses they receive from themselves; and the whole man is sure to act more vigorously, where the whole man is carried by natural motion.—*Essay concerning Human Understanding*, b. iv. chap. xix. § 5, 6, 7.

so it seldom, or perhaps never, produces sudden death; but as it excites very considerable, and often very permanent, activity of mind, and that activity is perpetually employed about one and the same subject; as it is not unusually connected with a too irritable, and what is commonly called a nervous state of the body; and always with weakness of judgment, strength of imagination, and sensibility of passion; and as it too often, as has been before observed, alternates with religious fear; it has a tendency to terminate, either directly in insanity of the enthusiastic kind[n]; or indirectly, by the interposition of religious fear, in despondency, and depair[o].

Vanity,

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[n] Instances of this are numerous, and several of them are related at length in the account of fanatical insanity. See above, vol. i. p. 221, &c. The case of JOHN ENGELBRECHT affords an extraordinary example of the most distressing religious despondency of many years standing, happily terminating in very permanent religious joy, with symptoms of a pleasing maniacal insanity.

[o] Of this examples are not uncommon. We meet with a remarkable one in LUTHER, the great champion of the Reformation; on whom, or whose cause, I am far from here intending the smallest reflection; having the greatest veneration for both; but candour must ackowledge that he was fitted for a reformer, by possessing much warmth and vehemence of temper, and no small portion of enthusiasm; and history, and even his own writings, inform us, that he was sometimes afflicted with religious melancholy.—It is no wonder, therefore, that men so much his inferiors, both in learning, and abilities,

Vanity, or pride, is an overweening opinion of the greatness, and value, of our own consequence, personal

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lities, as LUDOWICK MUGGLETON; a great pretender to inward light, which was to answer every purpose of religion; and his friend and associate GEORGE FOX; should, as we are told by LESLIE, be so deeply seized with despair, that, like the possessed man in the gospel, they forsook all human conversation, and retired into deserts and solitary places, where they spent whole days and nights alone.—LESLIE'S *Snake in the Grass*, edit. 1698, p. 331. See also FOX'S *Journal*. GRANGER'S *Biogr. Hist. Engl.* vol. iv. p. 210.

Rashness, vehemence, and obstinacy, were the acknowledged failings of LUTHER. Such dispositions imply excess of passion, and some defect of judgment; and have a tendency to produce, in minds religiously disposed, religious enthusiasm, which though it does not appear that he ever experienced in any such degree, as to disgrace his cause, pervert his conduct, or produce fanaticism; yet the passage in his last will, quoted by the elegant Dr. ROBERTSON (*Hist. of Charles, Vth.* vol. iii. p. 339), at the same time that it discovers an extraordinary elation of mind, betrays a near approach to the intoxication of enthusiasm.

But however we may think it doubtful whether he was ever much affected with religious enthusiasm, it is very certain that he was not always free from religious melancholy; which seems, sometimes, so far to have imposed upon his imagination as to have produced even ideal insanity.—Of these assertions it may be proper to bring some proofs.

In his retreat, in the castle of Wartenburg, in 1521 and 2, he was troubled with excessive costiveness; and with temptations of the devil, *qui etiam strepitu ei molestus fuit*, "who even made a noise to torment him;" and was cured by exercise, and medicines sent him by SPALATINUS.—MELCHIOR. ADAMI

personal endowments, abilities, attainments, or conduct; or of some other imaginary excellency which

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Adami *Vit. Germanor. Theologor. in vita* Lutheri, p. 122. —Hayne's *Life of Dr.* Martin Luther, p. 43.

In the beginning of the year 1527—"he endured not only a corporal malady, but also a spiritual temptation, which he called a buffeting of Satan. It seemed to him, that swelling surges of the sea in a tempest did sound aloud at his left ear, and against the left side of his head: yet not within but without his head, and that so violently, that die he must except they presently grew calm, &c."—Hayne's *Life of* Luther, p. 69.—Adami *Vit.* Luther, p. 134.

With these buffetings, and temptations, he was frequently visited; he called them conflicts between him and Satan; the terrors he experienced he called the *devil's traps*, from which God would deliver him; and said that the devil and all his angels vexed him.—Hayne, p. 70, 77, 125, 138.

Melchior Adam (Hayne, p. 162) informs us that he was teazed by the devil with many spiritual temptations, buffetings, and frightful spectres: that, when he lived at Coburg, burning torches sometimes appeared to him, which so terrified him as almost to make him faint away; from which he was relieved by medicines, and by reading the epistle to the Galatians; and that he used, on these occasions, to call to those about him to sing psalms with him in spite of the devil; and that the devil once appeared to him in his own garden, in the form of a black boar.

And that these buffetings, spectres, terrors, and temptations, as he called them, were no other than the effects of religious melancholy, to the production of which his peculiar temperament of mind, the ignorance and superstitious credulity of the times in which he lived, his incessant application to his studies, and sedentary life, all probably contributed, is pretty evident from

which we fancy we possess; and which we suppose that others hold, or ought to hold, in as high

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from the attendant circumstances: and the manner in which he speaks of these temptations is perfectly analogous with what he himself says of insanity.—" I think," says he, " that all fools, and such as have not the use of reason, are vexed or led aside by Satan: not that they are therefore condemned, but because Satan doth diversly tempt men, some grievously, some easily; some a longer, some a shorter time. And whereas physicians attribute much to natural means sometimes: this cometh to pass, because they know not how great the power and strength of the devils are."—HAYNE, p. 129.—ADAM, p. 164.

All this seems abundantly to prove that LUTHER was sometimes afflicted with religious melancholy in a very high degree; and is farther confirmed by his own account of his disputations, and other intercourses, with the devil: for which, as I have no opportunity of consulting the originals myself, I am obliged to trust to the fidelity of the extracts which are to be met with in BAYLE's Historical and Critical Dictionary, under the article LUTHER.

LUTHER, says he, owns, in several places of his works, that he knows very well the devil's way of disputing: and that it had cost him many a bitter night: *multas noctes mihi satis amarulentas et acerbas reddere ille novit.* " The devil," says he, " knows how to invent, and to urge his arguments with great force. He also speaks in a deep and loud tone of voice. Nor are these disputes carried on in a long course of various argumentation; but the question is put, and the answer given, in a moment. I am sensible, and have sufficiently experienced, how it sometimes happens that persons are found dead in their beds in a morning. He is not only able to kill, or strangle, the body; but knows how so to urge, and close in, the soul with his

high estimation as we do ourselves. The vain man, therefore, expects that others should look up with admiration to those uncommon qualities in which he so much exceeds the rest of mankind; or, at least, all those with whom while he compares himself he feels the emotions of this childish, delusive, and ridiculous affection.

As a pleasing, and not violent emotion, it would rather promote health than be injurious to it, did it not too often render us liable to chagrin, and mortification, from the disappointment of our expectations of that admiration, and applause,

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his disputations, that it is obliged to quit the body in an instant; a state into which he had nearly reduced me more than once.—Indeed I believe that EMPSERUS, ŒCOLAMPADIUS, and others who have died in the same manner, met with their sudden deaths by being pierced through with these fiery darts and spears of Satan. For no mortal can endure, and withstand them, without the peculiar assistance, and power, of GOD:—and his disputations are very brief, and he makes no long delay, if he happens to meet a man at home by himself."—To be short, he says, that "the *sacramentarians* do not understand the Holy Scriptures, because the true opponent, the devil, is no opponent of theirs; and that we are no better than mere speculative theologians, till we have had such an opposing devil clinging to our necks.—That, for his own part, he thoroughly knew the devil, and had eat more than one bushel of salt with him:—that the devil had much more frequently, and closely lain in bed, and slept with him, than his wife CATHERINE:—that he was wont to walk about with him in his bed-chamber:—and that he had had him hanging about his neck."—For the originals, and the authorities, of all this, I refer the reader to BAYLE himself.

which

which we fancy we merit; but which, however we may deserve, the world chooses to withhold while we so arrogantly demand it; and were it not, when most successful, and most gratified, apt to degenerate into insanity, by leading the mind so incessantly to dwell on the single subject of our own excellencies, as to render it, by means of such a perpetual recurrence of the same erroneous, or ill governed imaginations, at first notionally, and at length, by inducing an uniform and unremitting activity of the brain, ideally delirious. Of insanity apparently from this source, I have sometimes seen examples. That of NEBUCHADNEZZAR king of Babylon seems to have originated from the same cause: and ALEXANDER the Great was, I am persuaded, intoxicated to a degree of actual madness, by the folly of excessive vanity, as well as by that of excessive drinking.

Malevolence is defined by CICERO[p] to be "a pleasure arising from the sufferings of others, when they are unaccompanied with any advantage to ourselves."

This passion may have for its object certain individuals only; and may derive its origin from the personal resentment of some real, or supposed, injury, or affront. And in this case it nearly resembles *revenge;* from which it chiefly differs in this, that revenge is more violent; and,

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[p] Tusculan. Disputation. lib. iv. cap. x.

arising from that vehement desire of punishing an offender which is called *anger*, *deliberately* inflicts the punishment, which the momentary passion of anger would impel us to inflict *suddenly*; and which, if delayed till it has had time to subside, it would not inflict at all; is itself, directly or indirectly, the author of the punishment; and is in short, a fixed, deliberate, and durable anger: whereas malevolence, though arising from a permanent anger, and resembling revenge, is less violent than either; does not imply a desire of inflicting punishment; much less does it actually inflict any itself: but, being the reverse of benevolence, which rejoices in the good, it unkindly, and maliciously, rejoices in the harm, of others.

Or malevolence may extend to certain bodies, or societies, of men. When it appears in this form, it may have arisen from early prejudices, have been indulged from selfish and interested views, and have been fomented by contention and animosity, whether of the tongue, the pen, or the sword; and displays itself in the hatred of a party, of a religious sect, or of a rival nation; and in all these ways has often led on to every species of injustice, and inhumanity. Indeed the man who can once bring himself to feel pleaure in the pain of another, beyond the instantaneous impulse of a momentary passion, and exceeding the degree necessary for the correction of the fault, and the produc-

production of conviction and amendment, is of too savage a temper for civilized society, and might easily be driven along by the cruel malignity of ferocious passions, to any extreme of violence and barbarity.

Nor do a party, a sect, or a nation, set bounds to malevolence. It sometimes spreads unlimited, and comprehends the whole human race; and is then termed *misanthropy*; a pining, and gloomy passion, or habit of mind, which leads us to receive an uncomfortable sort of pleasure from thinking ill of, railing at, recounting the faults, and rejoicing over the miseries of mankind. It may receive its origin from private injuries done to us, from great disappointments, or heavy misfortunes, brought, or supposed to be brought upon us, by the selfishness, treachery, or malevolence of others; and will be fostered by pondering much upon the injustice, and ingratitude, we have experienced from our fellow-creatures; and, especially, if to this be added a firm persuasion that the human heart is entirely selfish, and ungenerous.

This unfriendly passion, though placed among those arising from a feeling of pleasure; from the circumstance of the gloomy and malicious satisfaction, which constitutes its essential character; is yet to those who are so unfortunate, and so sunk in the scale of moral depravity, as to be much subject to its influence, a source of infi-

nitely more pain than pleasure; not only as being a selfish passion, but as it is usually followed by a long train of other passions, no less selfish, malicious, gloomy, and painful; as envy, jealousy, suspicion, disappointment, hatred, revenge, anxiety, shame, grief, fear, terror, remorse, and the like malignant and tormenting affections. It is plain, therefore, that habitual malevolence must be a ready inlet to the various distresses of the hypochondriacal disorder, and insanity.

Desire is an earnest volition of the acquisition of some supposed absent good, or of the preservation of some present one: or, which amounts to the same thing, of the absence of some present evil, or the avoidance of some possible future one:—or, in other words, it is an opinion that the possession of some certain attainable, or possible, good, would contribute to our happiness; accompanied with a wish to be possessed of it, which is usually, more or less painful, in proportion to its intenseness, and to the prospect of its gratification.

Of this affection there are various modifications, which, according to the nature of its various objects, relations, and combinations, take various names: besides a considerable number of natural desires, which, not having acquired distinct appellations, pass under the general one: and which produce no very conspicuous commotion in the body, but so far as they give rise to the

other

other passions of joy, distress, anxiety, and fear; such as the desire of life, health, ease, pleasure, reputation, or the good opinion of mankind, and the like, with the avoidance of their contraries, death, disease, pain, disapprobation, and infamy.

There are, likewise, certain desires, or wants, which may be termed *unnatural*, and which I conceive to come under CICERO's description of *indigentia*, which he defines *libido inexplebilis*, "insatiable desire;" and to comprehend a great variety of artificial wants; — as the desire of *money*, the desire of *glory* or love of fame, the desire of *power*, a passion for *dress*, *gallantry*, *gaming*, *building*, *gardening*, or the like; any one of which, by habit and indulgence, may take such deep root in the mind as to become its ruling passion, and constitute the moral disease of *avarice*, *ambition*, *ostentation*, a nice sense of *honour* falsely so called, *affectation* of every kind, the *love of pleasure* and *dissipation*, and an almost infinite variety of nameless deviations from the true paths of virtue and happiness[q].

I call them unnatural desires, because they exist only in an advanced, and artificial state of society; and because some of them owe their birth to the peculiar manners, fashions, and luxuries, of the times, and countries, in which they prevail.

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[q] Vide HORATII Epist. 18, lib. i. ver. 96, &c.

It is too obvious to need discussion, and too notorious, to need proof, how frequently, and in what way, many of these artificial wants terminate in insanity.

Hope, which is a persuasion of the mind that we shall obtain the good we wish for, is an affection in which the pain of desire is almost annihilated by the pleasing prospect of approaching fruition; and the raptures of joy, which might accompany actual fruition, are quieted, and kept under, by the contrary emotions of still remaining desire, and of a slight though sometimes scarcely perceptible sense, of the possibility of disappointment: and is usually of so gentle a nature, so little inimical to virtue, and so friendly to health, as scarcely to retain the qualities and character, or to deserve the name, of a passion; or only to merit that appellation by retaining the good ones; for which reason, I suppose CICERO has omitted it.

What is here said, of the hope of obtaining a desired good, is equally applicable to that of avoiding an approaching, or escaping from a present evil. The absence of evil being to be considered, in this checquered state of good and ill, as the possession of real good; and the avoidance of, or liberation from, actual evil, as equivalent to the acquisition of no inconsiderable degree of positive good.

Human happiness, in its most perfect state,

seems

seems to be made up of a calm satisfaction in the enjoyment of present good, and the pleasing hope that it will continue, or will be succeeded by some other good, no less grateful to our natures, and agreeable to our wishes.—Satisfaction, therefore, and hope, the gentlest, and most harmonious affections of the mind, always accompany, and are accompanied by, the most harmonious, gentle, and salutary movements of the living, and active powers of the body. As they are attended with no painful emotions, so they are productive of no injurious effects, either on the mind, or body; and are as unconnected with vice, as they are the enemies of mental suffering, and bodily disease.

I here speak of a pure, and rational hope, untainted with any other passion, and worthy of our nature. But it is proper to add, that hope may be combined with other passions, and may have for its object real evil, under the specious appearance of good. I may hope to obtain the gratification of some irregular appetite, or disorderly passion; or to acquire some fancied good which is in reality an evil. In these cases, hope is but an under passion, a mere adjunct, accident, or modification; but partakes not of the evil of the passion with which it is united. Hope, as hope, is still pleasing, still salutary; and even here displays the beneficence of its nature: for, though it cannot overcome, it diminishes, the pernicious effects

of the painful and turbulent passions, with which it is combined.

In like manner, hope may be connected with some species of insanity, as a symptom, but never as a cause. It may exist in the cheerful kinds of this disorder, without producing either bad effects, or good ones; without promoting its increase, or contributing to its amendment; but it is of so opposite a nature to those kinds of insanity which are characterized by gloominess, and melancholy, that whenever it can be excited in cases of this sort, it affords an excellent sign of amendment; and whatever means are capable of exciting it, will have a powerful tendency to facilitate their cure.

Anger is the resentment which we feel of an injury done, or intended, to ourselves, or to others, accompanied with a desire to punish the transgressor. Its immediate effect is to increase the muscular, and vascular tones of the body; to augment strength; and to accelerate the circulation of the blood through the whole system of vessels, both great and small; to increase the quantity of blood sent to the head, and when vehement, to produce in the arteries a degree of inflammatory tone; in short, to excite the most sudden, and violent, exertions of the nervous power, over the vessels, and muscles; and to leave, when it subsides, in consequence of such

uncom-

uncommon and tumultuous efforts, diminution of tones, and especially of the muscular, debility, languor, trembling, palpitation, and sometimes even fainting.

Hence it is obvious why it is accompanied with a general increase of warmth, and of insensible perspiration; and especially with uncommon flushing of the face, and heat and throbbing in the head; why it exhibits vast and astonishing efforts of strength; why the hurry of great and unusual exertions should occasion stammering; and why the violent agitation of mind with which it is attended, should produce restlessness, and inquietude, of body. From the sudden change in the circulation of the blood in the large vessels, it is easy to account for the palpitations which are sometimes felt at the heart: and from the acceleration of the blood's motion in the small ones[r],

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[r] "Ad incitatum autem sanguinis motum pertinent sanguinis subtiliores effusiones, maculæ sanguineæ *, macula subito fusca in pede nata, hinc † gangræna ‡ maculæ et vibices lethales, et nigredo a pede ad genu §. Cum isto effectu comparo rubedinem in gallorum calecuticorum collo ex ira natum, ipsa denique chamæleontis phænomena. Ea enim, &c. &c."—HALLERI *Element. Physiolog.* lib. xvii. sect. ii. § vi. tom. v. p. 587.

* PETZOLD. Obs. 20

† ALBERT. Med. Leg. tom. iii. c. 134.

‡ Idem. ibid. QUESNAI de la Gangrene, p. 330.

§ Gal. di Minerv. vi. p. 132.

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we can easily conceive why anger should give rise to hemorrhages, inflammations, fevers, epilepsies, apoplexies, and insanity; and why it should occasionally excite vomiting, purging, and in some cases, by producing a spasm on the excretory ducts of the bile, even a jaundice; and, by a like sudden spasm in the intestines, the iliac passion.—Hence we see how anger may give motion to a paralytic limb; cure the dumb; drive away the paroxysms of the gout and rheumatism; relieve some sorts of fevers; and protract the hour of death itself, keeping up for a while the vital flame by its strong and animated excitement of the nervous power.

Since anger is productive of such extraordinary commotions in the body, and is itself so much like insanity, as to be very commonly styled, after HORACE*, and some other of the ancients, "a short madness," we cannot wonder that it should sometimes terminate, immediately, in actual insanity. Nor will it be difficult to conceive how a passion which occasions so sudden, and so con-

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* "Ira *furor brevis* est, animum rege, qui nisi paret,
Imperat: hunc frenis, hunc tu compesce catena."
Epist. ii. lib. i. v. 62.

Anger's a *shorter madness* of the mind;
Subdue the tyrant, and in fetters bind.
FRANCIS.

Vide etiam CICERONIS Tusculan. Disputat. lib. iv. cap. 26.

siderable

siderable a change in the circulation of the blood in the head; which is so usually succeeded by the contrary emotions of sorrow, and repentance; and which not only is the legitimate offspring of a degree of mental imbecillity, but, by injuring the brain, tends still farther to weaken the faculties of the mind, and by rendering both mind and body, if long and habitually indulged, too irritable, impairs the judgment, and exposes to the frequent attacks of the most hurtful passions; should in the course of time, other causes conspiring, occasion almost every species of insanity.

Though anger, however, be a pernicious one, it is often the passion of generous minds; but *hatred*, which may be defined an inveterate anger, and is a rooted resentment against some one obnoxious person, or against some religious sect, some party, some society, or class of people, against one of the sexes, or against mankind, is always a mark of a weak mind; and, where it is not a symptom of actual insanity, as it frequently is, is the certain sign of a base, and corrupted heart: and is always of so gloomy, as well as of so malevolent, a nature, as when by indulgence it has insinuated itself into the very temper and constitution of the mind, readily to extend itself to particular bodies of people, or to mankind; and insensibly to degenerate into a morose kind of melancholy, whose object may indeed be various,

rious, but whose effects must ever be gloomy, painful, and tormenting.

Love is a passion of a very different nature, and of an opposite tendency. When extended to mankind in general, it is called benevolence; when confined to an individual, with a passionate warmth of attachment, it is called friendship; or if that individual be of the other sex, and it have a view to the union of the two, it becomes a most tender and interesting attachment, which has universally acquired the almost exclusive title to the appellation of love[t].

Love between the sexes, when it is reciprocal, and uncontaminated with appetite, consisting in the most exalted feelings of the tenderest friendship[u], without having yet excited a desire, or even a thought,

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[t] See a beautiful passage from SPENSER, containing a comparison between natural affection, love, and friendship, in the Spectator, No. 490. vol. vii. p. 61.

[u] "Stoici vero et sapientem amaturum esse dicunt; et amorem ipsum, conatum amicitiæ faciendæ ex pulchritudinis specie, definiunt. Qui si quis est in rerum natura sine sollicitudine, sine desiderio, sine cura, sine suspirio; sit sane: vacat enim libidine:—sin autem est aliquis amor, ut est certe, qui nihil absit aut non multum ab insania, &c."—CICERON. *Tusculan. Disputat.* lib. iv. cap. 34.

"But the stoics allow that a wise man may be in love: and define love itself to be a desire of uniting in friendship, excited by personal beauty. And, indeed, if there be such a thing in Nature as love without solicitude, without the pain of absence, without

a thought, of any sensual gratification, is the sweetest, gentlest, and most amiable of the passions; and produces exactly the same bodily effects as temperate joy; promoting health and cheerfulness, invigorating the body, improving the temper, softening the manners, inspiring courage, and sharpening and animating every faculty of the mind:—and even when combined with appetite, an union to which the purest love between the sexes has, in certain circumstances, a necessary tendency, it has, when indulged with moderation, the same salutary effects, perhaps in a greater degree; besides, others, no less beneficial, which are peculiar to itself;—and, indeed, I know of no one ill consequence which can proceed from mutual, temperate, and lawful love.

But from an immoderate indulgence of the appetite connected with this delightful affection, the very worst consequences too often ensue: and, though the unsuspected, it has frequently, I believe, been the real source of insanity, when it has been erroneously attributed to some other cause, or when no probable cause could be assigned.

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without care, without sighing; such a love may be allowed; as being free from all desire:—but if there be such a sort of love, which there undoubtedly is, as differs very little, if at all, from insanity, &c."

Intempe-

Intemperance of this sort, not only exhausts the body, but depraves and enfeebles the mind; and exchanges health, strength, ease, and cheerfulness, for disease, languor, pain, and unsurmountable dejection, which, with the assistance of some accidental occasional cause, and sometimes even without it, too readily terminates in insanity.

But this disease most frequently arises from the other passions, with which love is often, unhappily, tormented; as solicitude, fear, suspicion, jealousy, joy, grief, hope, doubt, disappointment, despair*;—and from that unremitting attention

* "Sic igitur adfecto hæc adhibenda curatio est, ut et illud quod cupiat ostendat quam leve, quam contemnendum, quam nihili sit omnino; quam facile vel aliunde vel alio modo perfici, vel omnino negligi possit: abducendus etiam est nonnunquam ad alia; studia, sollicitudines, curas, negotia: loci denique mutatione, tamquam ægroti non convalescentes, sæpe curandus est: etiam novo quidam amore veterem amorem, tamquam clavo clavum, ejiciendum putant: maxume autem admonendus, quantus sit furor amoris. Omnibus enim ex animi perturbationibus est profecto nulla vehementior: ut, si jam ipsa illa accusare nolis, stupra dico et corruptelas et adulteria, incesta denique, quorum omnium accusabilis est turpitudo: sed ut hæc omittas, perturbatio ipsa mentis in amore fœda per se est: nam ut illa præteream, quæ sunt furoris; hæc ipsa per sese quam habent levitatem, quæ videntur esse mediocria?

——————————Injuriæ,
Suspiciones, inimicitæ, induciæ,

Bellum,

tention of mind with which the lover's thoughts are for ever employed about the beloved object of his unalterable affection; which will scarcely permit him to eat, drink, or sleep, and sometimes

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> Bellum, pax rursum: incerta hæc si tu postules
> Ratione certa facere; nihilo plus agas,
> Quam si des operam, ut cum ratione insanias."
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> CIC. *Tusc. Disp.* ib. cap. 35.

"A person thus affected should be cured in this way;—he should be convinced how light, how despicable, how worthless a thing, is the object of his desire: how easily it may be obtained from some other quarter, or in some other way, or may be disregarded altogether: he should sometimes also be diverted to other things; to study, bustle, care, or business: and, lastly, the cure should frequently be attempted, as in the cases of sick persons whose recovery seems to make no advances, by change of place: some are even of opinion that as one wedge is driven out by another, so should an inveterate passion be expelled by a new one: but, above all, he should be made sensible how much of madness there is in love. For of all the passions there is no one more violent: so that, to say nothing of rapes, seductions, adulteries, or even of incests, all of which are chargeable with most criminal turpitude: but, to say nothing of these, the mere disorder of mind which accompanies love is of itself disgraceful: for, to pass over such of its excesses as partake of insanity; how much is there of folly even in what may be esteemed its moderate irregularities? Its—

> ————————————Injuries,
> Suspicions, enmities, short reconcilements,
> War and then peace again: if such uncertainties
> By reason you would fix, you might as well
> Wish to be mad, and yet retain your reason."

banishes

banishes sleep entirely from his eyes; which will induce him, when in the agonies of anxiety, fear, suspicion, or of any of the other baneful passions attendant upon love, to neglect business, and all the duties of his station, and of social life; to be slovenly in his dress, and even inattentive to cleanliness; will torment him with doubt, dissolve him with grief, make him frantic with jealousy, or freeze him with the horrors of despair;—or, when less violent, will lead him to some gloomy retirement to meditate in silence,—to walk with folded arms, and drooping head,—to be restless and agitated, in motion, gesture, and countenance,—to be absent to every thing external,—and, in short, day and night to think, to dream, of nothing else but the dear, interesting image, graces, and conduct, of the object of his unfortunate passion[w].

Love,

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[w] Love, and its effects, have been favourite subjects with poets, of every age, and nation. THOMSON, in his Seasons, has given some beautiful sketches of it, in its various forms. The following lines, in his Spring, afford an exact picture of some of the pernicious effects of violent, and ill-regulated, love:—

"But absent, what fantastic woes, arous'd,
Rage in each thought, by restless musing fed,
Chill the warm cheek, and blast the bloom of life!
Neglected fortune flies; and sliding swift,
Prone into ruin fall his scorn'd affairs.
'Tis naught but gloom around; the darken'd sun

Loses

Love, in this state, is by Paulus Ægineta[*] very properly considered as a disordered affection of the brain: and, indeed, it not only too often exhibits every symptom of notional insanity; but frequently terminates in the most deplorable extremes of every species of the ideal.

Ambition, or the earnest desire of power, and pre-eminence, may, when excessive, dispose the mind to insanity,—by leading it to dwell too intensely, and incessantly, on the sole object of its pursuit, and aspiration;—by the injurious tendency of any violent and predominant passion which may accompany it, as envy, jealousy, anger, resentment, malice, hatred, revenge, disappointment, indignation, grief, or despair;—by the perpetual agitation, and sudden extremes, of opposite and contending passions; of hope and fear, elevation and depression, cheerfulness and anxiety, fruition and deprivation, joy and distress, expectation and disappointment;—by fatigue of body, and mind, from perpetual, intense, and anxious thinking;—and by want of

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Loses his light; the rosy-bosom'd spring
To weeping fancy pines; and yon' bright arch,
Contracted, bends into a dusky vault.
All Nature fades extinct; and she alone
Heard, felt, and seen, possesses every thought,
Fills every sense, and pants in every vein. &c. &c. &c."
Verse 1001, &c.

* De Re Medica, lib. iii. cap. 17.

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the due relaxation, and refreshment of sleep; which will too often be greatly interrupted, and sometimes entirely banished, by much and deep thinking, by the restless activity of violent, and by the ferment and agitation of contending, passions.

A violent, and unreasonable affection for money, as a thing of inherent, and intrinsic value, without any immediate respect to its use, any proper, and proportionate regard to the advantages, and comforts, which we may derive from it ourselves, or be enabled by possessing it to confer upon others, is denominated *avarice:* a most sordid, selfish, and ungenerous passion, which, while it withholds, and stifles, our natural sympathy, and pity, for our fellow-creatures, never fails to punish with the pains of anxiety and care, and with a total privation of the finest pleasures of our nature, the unhappy wretch who is so unfortunate as to suffer himself to be enslaved by an attachment so little alluring, so perfectly irrational, so subversive of our best moral feelings, and so degrading to humanity.

That such a passion should exist seems as wonderful, as it is common. Nor, indeed, could it ever take possession of the mind, but by insensible approaches. It steals upon us by degrees, under the semblance of proper economy, and a prudent provision for future enjoyment, till familiarity makes us insensible of its deformity; and, by an

absurd

absurd association, we begin to esteem on its own account, what we at first valued merely for the sake of the conveniences which it was capable of procuring us; and to transfer that affection to the means only, which ought to have been placed entirely, and without deviation, upon the end.

What powerfully assists in bringing about this revolution, is the fear of poverty; which is too ready to take the place of an habitual care to save money, and of an anxious solicitude to provide for futurity; and which so naturally springs up, and strikes such deep root, in the mind of a covetous man, as scarcely ever to be eradicated where it has once fixed; and often, as I have experienced in a number of instances, to terminate in that variety of pathetic insanity which I have denominated avaricious, and of which the principal, and characteristic symptom, is the groundless dread of poverty in the midst of affluence.

Fear, anxiety, insatiable desire, and unceasing care, are the never failing tormentors of the man of avarice: nor are they his only tormentors: he sometimes voluntarily afflicts himself with the needless sufferings of poor, and scanty diet; of mean, and insufficient, cloathing; of the want of every comfort of life; with the certain hardships of a rigorous, artificial, poverty, amidst the imaginary, and improbable apprehension of a real one: and is occasionally agitated with suspicion, anger, hatred, distress, grief, despair, or whatever other

passion may possibly accompany the solicitude of collecting, and hoarding, the dread of losing, and the sorrow for the actual loss, of the primary, and almost only object, of all his cares, and all his wishes.

If to this be added the pain of the selfish passions; the privation of the cheering, animating, and salutary influence, of the social ones; the horrors of a life of almost perpetual solitude, which is often the lot of the covetous man; the moping gloominess of spirit, and uncomfortable void of the heart; that total want of an undescribable something essential to human felicity, which must frequently be experienced by a being who neither loves, nor is beloved, who is interested in no one's happiness, and is conscious that no one can be interested in his own;—a man of generous sentiment, and keen sensibility, will be apt to wonder that such a character as a miser can exist; or, existing, can long retain his senses: and even men of less delicate feelings will not be surprised that such a passion, or moral depravity, as avarice, should often terminate in insanity, which in its best condition, it so much resembles.

How such passions, and such habits of life, as have been here attributed to this sordid disposition, may be productive of insanity in a variety of ways, it is easy to perceive from what has already been said of the nature and operation

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of the passions, of poor diet, and of constant attention of the mind to one object; and will presently be farther illustrated, in treating of the passions which yet remain to be considered.

Distress is the affliction which we feel from the present pressure of what we conceive to be an evil; arising from a persuasion of the mind that the evil which has befallen us is a sufficient cause for such affliction. The passions of this class have a great variety of names; as envy, pity, commiseration, uneasiness, dejection, anguish, sorrow, mourning, lamentation, grief, despair, and many others; of which several are nearly synonymous; some indicate passions which differ only in degree; and none produce any very considerable bodily effect which is not exemplified in envy, pity, grief, dejection, and despair.

Envy is that affection of the mind, by which we are distressed at the good fortune of another; either because we ourselves are in want of what he enjoys; or because, he being possessed of a desirable object as well as ourselves, our ungenerous hearts are deprived of an invidious, and insulting superiority;—or because we cannot bear to see another happy, how remote soever his happiness may be from interfering with our own; or the object of it from being an object of desire to ourselves.

This passion, in all its varieties, is of a most painful, and in some, of a most malignant nature;

 being

being usually accompanied with anger, and hatred;—either in consequence of an unjust association, as if they had actually injured us, who possess what we are so unhappy as to be unable to obtain, or what we wish to possess exclusively, and without a rival;—or in consequence of some former injury which we yet resent, and which leads us to view with a malicious indignation, the prosperity of a foe;—or because the person envied has actually been either the intentional, or the innocent cause, of our own deprivation;—or from a temper, than which none can be more painful, or detestable, unfortunately so depraved by habitual envy, as to feel a malevolent enmity to whatever we see great, or good, or happy, or desireable, in the character, or acquisitions, or successes, or other circumstances, of our associates, neighbours, or fellow-citizens.

The effects on the body of this malicious, and despicable passion, which excites a desire of humbling those whom we see equally, or more prosperous, and whom we imagine as happy, or happier, than ourselves, are similar to those of grief, or dejection, hereafter to be described; but often animated, and at the same time rendered more painful, by the violence of anger, the malevolence of hatred, or the fretful impatience of peevishness. As it is a most selfish, degenerate, and vicious passion, engrafted upon the generous, natural, and virtuous one of emulation; so

so it is most gloomy, and uncomfortable; and one of the most unprofitable, pernicious, and incurable, that can torment and corrode the human heart. An envious temper is destructive of the peace of mind, and injurious to the health, of its possessor; and a scourge to all within the reach of its baneful influence[y].

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[y] Its hateful effects cannot be better described, allowing for some little poetical heightening, and embellishment; if that may be called embellishment which is intended to render a picture more disgusting; than in the words of OVID, in his description of the visit of MINERVA to the cave of Envy; where he tells us that,—

"Utque deam videt formaque armisque decoram;
Ingemuit: vultúmque ima ad suspiria duxit.
Pallor in ore sedet: macies in corpore toto:
Nusquam recta acies: livent rubigine dentes:
Pectora felle virent: lingua est suffusa veneno.
Risus abest; nisi quem visi movere dolores.
Nec fruitur somno, vigilacibus excita curis:
Sed videt ingratos, intabescitque vivendo,
Successus hominum: carpitque et carpitur una:
Suppliciumque suum est.————
————Et tandem Tritonida conspicit arcem,
Ingeniis, opibusque, et festa pace virentem:
Vixque tenet lacrymas; quia nil lacrymabile cernit."

Metamorphos. lib. ii. v. 773, &c.

"Soon as she saw the goddess gay and bright,
She fetch'd a groan at such a cheerful sight.
Livid and meagre were her looks, her eye
In foul distorted glances turn'd awry;

As envy pines at the prosperity, and happiness, so *pity* sympathizes with, and commiserates, the misfortunes, and miseries, of others: especially if they suffer undeservedly, and without any guilt, or even fault, of their own; or if their sufferings be much greater than the vices, or inadvertencies, which occasioned them. For the idea of guilt weakens the sympathy, and diminishes the pity, which we should naturally feel for an innocent sufferer. This passion habitually indulged, and meeting with too frequent exercise, as it may readily do when the objects, and occasions of it, are industriously sought for, and cultivated, softens and enfeebles the mind, renders it unfit to bear with fortitude the ordinary occurrences of society, occasions a propensity to picture human life in the darkest colours, to indulge

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A hoard of gall her inward parts possess'd,
And spread a greenness o'er her canker'd breast;
Her teeth were brown with rust, and from her tongue,
In dangling drops, the stringy poison hung.
She never smiles but when the wretched weep,
Nor lulls her malice with a moment's sleep,
Restless in spite; while watchful to destroy,
She pines and sickens at another's joy;
Foe to herself, distressing and distress'd,
She bears her own tormentor in her breast.———
———When Athens she beheld, for arts renown'd,
With peace made happy, and with plenty crown'd,
Scarce could the hideous fiend her tears forbear,
To find out nothing that deserv'd a tear."

impres-

impressions of gloominess, and dejection, and to prepare the way for the easy introduction of melancholy, and despondency: which would be greatly facilitated by the relaxation of all the tones, naturally resulting from a continued course of such an enervating employment of the mind: but, pity being, happily, a passion which has nothing of self for its object, is rarely indulged to such an excess, as to do any material injury, or lay the foundation for insanity. In truth, it is usually indulged too little; and perhaps never to any unreasonable degree, but where it meets with encouragement from a disposition of mind too much softened by misfortunes, or too tender by temperament, and already predisposed, and approaching, to insanity.

Grief is a violent, piercing, and overwhelming distress, usually accompanied with tears, occasioned by the recent privation of some real, or supposed, good, which we highly esteemed; or by the recent infliction of some positive, or imaginary, evil, of considerable weight and magnitude.

Grief, on its first attack, if the cause be great, produces violent agitation both internal and external; in the mind, in the nervous and vascular systems, and in the bodily gestures; with a profusion of tears, and frequently with much lamentation:—but if it be sudden, as well as great, its effects are exceedingly aggravated by surprise;

and

and if terrible, with horror; under both which circumstances, if not soon relieved by tears, it may end in insanity[1], or in sudden death:—and in

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[1] "Mercator quidam opulentus, quadragenarius, temperamento melancholicus, ex magnæ pecuniæ jactura, ante aliquot menses facta, in magnum *mœrorem* et perpetuam solicitudinem, pene omnem somnum ipsi adimentem, incidit. Mensem hoc affectu tortus, solitudinem quærere, absurda cogitare, et præsentem egestatem, per quam sibi et familiæ suæ præ fame sit moriendum, imaginari cœpit. Huc accessit, quod, malo paulatim ingravescente, æternis inferni cruciatibus a Deo se adjudicatum jam credat, monstrosisque spectris, quæ diabolos appellat, se frequenter infestari vigilans et somnians putet, quamvis ipsi mens officio suo in reliquis satis bene fungatur, nulla tamen ratione, hæc non vera, sed imaginaria esse, persuaderi a quoquam potest. Atque ideo, perpetuo angore se miserrime excrucians, vitam cum morte commutare exoptat. Ab alimentis et medicamentis est alienior."—JOH. BROEN. *Animadversion. Medic. in* HENR. REGII *Praxin. Medicam.* lib. i. cap. 14, p. 137.

"An opulent merchant, of forty years of age, and of a melancholy temperament, in consequence of the loss of a large sum of money a few months ago, was affected with such excessive *grief*, and perpetual anxiety, as almost entirely deprived him of sleep. After having been thus tormented for about a month, he began to be fond of solitude, to have absurd thoughts, and to imagine that he was reduced to absolute poverty, and that he and his family should perish for want. To add to his distress, his disorder having gradually increased, he fancies that he is condemned by God to eternal torment; and that he is perpetually haunted by monstrous spectres, which he calls devils, both sleeping and waking: and though the faculties of his mind perform their functions in every other respect very

in any of these cases it may produce palpitation of the heart, swooning, a difference of the pulse in the different arms, polypous concretions in the large vessels, and sometimes an immoderate flow of the menstrual evacuation.

In proportion to its violence, and duration, it weakens, and wastes, the body. It immediately diminishes the muscular and vascular tones, and, in the end, if long continued, impairs the elastic; and, with them, lessens the irritability, and sensibility, of the whole nervous system. Hence arise, a great and universal decay of muscular strength, a general languor, and debility, of all the vital actions, and, for the most part, a sluggishness of the natural ones. Sometimes, indeed, and especially in the fair sex, it is accompanied with symptoms of diseased irritability, with spasmodic affections, and with an increase of the natural excretions; common attendants upon diminution of tones, obstruction of insensible perspiration, and weakness of digestion; but upon the whole, that kind of nervous vascular tone is chiefly produced, in which the action of the heart and arteries, and of the secretory and excretory vessels, is rather too dull, than too irritable.

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very well, yet can he by no reasoning be persuaded that these are mere fancies, and not realities. Perpetually, therefore, tormenting himself with the most dreadful apprehensions, he wishes for death, and refuses both food and medicines."

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This universal debility, besides its constant, and necessary effects, may give occasion to various other disorders, both general and local; accordingly as the body may happen to be exposed to the influence of their exciting causes, or as its different parts may be previously liable to be more or less affected by such debility.

From this general view of the effects of grief on the body, it will appear obvious why the pulse is usually weak, small, slow, and sometimes intermitting; why perspiration is checked; why the face becomes pale; the skin relaxed, and flabby; the whole body, and especially the extremities, cold; the menses suppressed; the habit œdematous; and, after the first agonies of grief are abated, which are commonly accompanied with watchfulness,—and perpetual watchfulness, as has been already explained, is often speedily succeeded by maniacal and phrenitic insanity[a],—why the sleep is not unfrequently both oppressive, and disturbed.

If to the consideration of the diminished irritability, and sensibility, of the vascular system, we add that of the constant attention of the mind to the object of its sorrow, it will likewise be obvious why frequent sighing becomes necessary to facilitate the passage of the blood through the lungs; why the appetite, and digestion, so re-

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[a] See the preceding Note.

markably

markably suffer; and why the operation of purges, vomits, and even of opiates, may sometimes be prevented, by this stupifying, enfeebling, and unremitting passion.

Nor will it be difficult to conceive why grief renders the body liable to all those disorders which are accompanied by weakness of the vital powers; and why it aggravates those which are apt to drive violence, and danger, from such weakness: why it disposes the body to imbibe, or to retain, infection; as the pestilential, variolous, putrid, and others; which have been observed to attack more readily such persons as are much affected with fear, or grief; and why it increases the danger of infectious diseases, when previously existing: why it does the same with regard to the scurvy, and especially in long, anxious, and distressful voyages; and with regard to the malignant fevers, which are so prevalent, and which are known to make such dreadful havoc, in towns that are besieged: why it causes, or aggravates, the hysteric disease, the stone, gout, scirrhous tumors, and cancers; makes wounds mortify; occasions gutta serenas, palsies of every kind, and sometimes lethargies, and apoplexies: why, aided by that obstinate, and statue-like inactivity, which ever accompanies it when excessive, it produces an impeded circulation, and congestion of blood, in the veins which terminate in the vena portarum; obstructions, local inflammations,

mations, and abscesses, in all the abdominal viscera; flatulencies and acidities in the first passages; diarrhœas, dropsies, and the like.

All these things considered, it will not appear wonderful, that, besides sudden death, or sudden insanity, it should also, in a variety of ways, be the cause of a lingering dissolution; and that the perpetual gloom which accompanies it, and the constant attention of the mind to the same melancholy ideas, should ultimately introduce either notional, or ideal, insanity; or, in their natural order, first the one, and then the other.

When time, which abates the violence of grief, is unable to wear away the painful impressions which it has imprinted on the mind[b]; or to banish the regret, which it still acutely feels, of the infliction, or privation, which originally gave rise to it, and which yet subsists; it is apt gradually to subside into a fixed sorrow, or *dejection* of mind; which may be defined to be an habitual distress, with which we are affected by the presence of some permament evil, and which disposes

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[b] BOERHAAVE remarks, that the passions sometimes so deeply impress the ideas of their object upon the mind, as to render them, for a long time, incapable of being obliterated: and tells us, that he himself had experienced that it was impossible, with his utmost endeavours, to efface the recollection of certain calamities; the ideas of which seldom left him even in his sleep.—*Prælection. Academic. in proprias Institutiones Rei Medicæ*, tom. vii. p. 145.

us

us to view such evil as incompatible with our happiness, and, by giving to all our thoughts a melancholy cast, inclines us to consider whatever concerns ourselves in the most gloomy, and uncomfortable light. It differs from grief only with respect to vehemence, and duration; and, while that may produce sudden and violent effects, this works more slowly, though not less surely; gradually undermining, and destroying, the tone and vigour both of the body and mind; and, like grief, not only bringing on all the bodily diseases arising from debility; but all those mental ones, which are the natural offspring of a permanent, and distressful passion, which disposes the mind incessantly to brood over its object, and to cherish the gloom by which it is undone.

Long continued grief, by weakening the mind, and brain, and rendering those vibrations habitual which are connected with distressful, and melancholy feeling, may give rise to an habitual depression of spirits; which may be kept up, and perpetuated, by a variety of disagreeable occurrences, unconnected with the original cause of grief, and without the excitement of those particular ideas of distress in which it originally consisted; which occurrences, though not perfectly agreeable, would not of themselves, and without the aid of that habitual soreness of mind, if I may so term it, have been sufficient to excite any more than a slight,

slight, and momentary uneasiness; or perhaps would have excited none at all.

When we have no hope of regaining a lost good, or of being freed from an inflicted evil, we may then be said to feel the emotion of *despair*; but, in a more strict sense, despair may be defined to be—the extremity of distress, with agonizing horror, occasioned by the sense of some dreadful present evil, from which we have no hope of extricating ourselves; or the apprehension of some equally, or more, dreadful, future evil, which appears to be as inevitable, as altogether insupportable, and affects us, by its supposed certainty, as if actually present.

This passion is always terrible, being made up of the very excess of grief, and dejection; but is peculiarly dreadful when, as is too often the case, it has religious distress for its object: and rends the heart with those inexpressible horrors, which are experienced by such miserable mortals as imagine they have committed crimes which can never be forgiven by an offended deity, and for which they are inevitably doomed to everlasting torment.

This religious despair may be thought to be improperly placed here, as having future misery for its object, and seeming to be a species of fear; under which some have thought proper to class it; and the reverse of hope, from the absence of

which

which it derives its name :—but, not to mention that CICERO, and the stoics, whom in this respect he implicitly follows, have very properly placed despair under the distresses; and there seems to be no just reason why religious despair should be separated from the other species of this most deplorable mental affection; it may be observed that, as the future evil, being supposed inevitable, operates on the mind as present; and as the crimes, supposed, or real, being irrevocable, and irremediable, are ever present to the despairing mind, as actually existing causes, of certain, and unavoidable effects; and as the anxiety of fear is lost in the more dreadful certainty of despair; this passion may, with great propriety, be ranked among those which have for their object present evil, and go under the general denomination of distresses.

When despair arises from some very interesting, and important, object, whether it be love, or religion, or whatever it be; but especially love, or religion; it too often prompts its unhappy victims to suicide[c].

The effects of despair on the body, are of the same nature with those of grief and dejection; to which are sometimes superadded those of an-

[c] Both these causes are judiciously exemplified, and finely delineated, by SPENSER, in the Faery Queen, book i. canto 9, stanza xxviii—liii.

ger, against the persons, whether ourselves or others, from whom we suppose our misfortune to have proceeded; and, whenever the object is very great, and important, as it always is in that degree of despair which is the proper subject of my present consideration, those of horror and terror, often from its suddenness, and always from its apprehended magnitude, and inevitability.

When it is thus derived from the most important objects, as from the actual, or unavoidable loss of much loved friends, of fortune, or of liberty, or from the total privation of the hope of eternal salvation;—despair then adding, to the excess of grief, the astonishment of horror, the agonies of terror, and the fury of hatred, and revenge, towards ourselves or others;—its effects are violent, and even discordant;—violent, from the acuteness of the distress, and of the other emotions, which accompany it; and discordant, from their opposite, and discordant influence on the nervous, and vascular, systems; tending to excite immediately both a determination of the circulating blood to the surface of the body, with an increased action of the oscillatory motion of the capillary arteries; and a spasmodic affection of the same vessels, and a consequent retropulsion of the blood into the large vessels; and, sooner or later, a diminution, in their natural order, of all the tones of the body: and, in short, producing every kind of disorderly motion, which has

has a tendency to injure, or destroy, the human frame. For,—as HOFFMAN[d] no less justly, than ingeniously, observes—" as the motions, in the body, hostile to nature, and productive of disease, may be divided into three general classes; the violent motion of a fever, which impels the blood forcibly from the inner to the outer parts of the body; spasm, by which it is driven from the external parts to the internal; and atonia, which consists in the too great resolution, and relaxation, of the moving fibres, and the remission of their tone; so, in like manner, there are three violent passions in what is called the sensitive soul, each of which is in a peculiar manner adapted to excite and keep up, its corresponding morbid motions in the body; anger operating by the excitement of a febrile motion, terror by a spasmodic

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d " Sicuti tres maxime motuum naturæ hostilium et morbificorum dantur classes, ut vehementior febrilis, qui ab intra foras cum impetu pellit sanguinem, et spasmus, qui ab exterioribus eum urget ad interiora, et denique atonia, quæ in nimia resolutione et relaxatione fibrarum motricium et remissione toni consistit: ita etiam tres vehementes in anima sic dicta sensitiva exurgunt passiones, quæ singulas has motiones morbosas peculiari modo fovent et sustinent, adeo, ut ira motu febrili, terror spasmo, tristitia atonia operationes suas exserant. Et quemadmodum ira et terror celerrime agunt, ita tristitia tardiori paulo gradu nocet, paulatim corporis vires depascendo, et tonum ac robur partium solidarum solvendo."—HOFFMAN. *Med. Rat. Systemat.* tom. ii. part. ii. cap. i. § 30.—*Operum,* tom. i. p. 193.

 motion,

motion, and sorrow by the diminution of tone. And as anger and terror act with rapidity, so sorrow injures more gradually, by insensibly consuming the powers of the body, and relaxing the tone and vigour of the solids."

Despair of every kind, from whatever cause it may have originated; whether from the loss of friends, fortune, or liberty, or from religious distress and apprehension; very readily terminates in insanity: and, even in those persons, in the production of whose distress religious fear was no way, originally, concerned, it very commonly happens that, by exciting a gloomy turn of mind, which disposes it to view the worst, and most unpleasing, side, of whatever concerns the welfare of the unhappy sufferer, it degenerates, sooner or later, into religious desperation, in which—

"Hope never comes, that comes to all;—

a dreadful state of mind, which constitutes one of the most dismal, and shocking, varieties, of pathetic insanity.

Fear is the emotion which we feel, when we apprehend that we are in danger of being deprived of some present good which we enjoy; or that we shall be prevented from obtaining some absent good of which we are in pursuit; or when we conceive ourselves to be threatened with some impending evil.—When the evil apprehended is such

such as threatens injury to the body, or destruction to life, fear impels us to shrink from, and avoid, the danger; and to escape by flight from the coming mischief.

Consternation is sudden and excessive fear, which so discomposes the mind, and diminishes its influence on the muscles subservient to voluntary motion, as to take away, always in a great degree, and sometimes entirely, the power of resistance, or of flight.

Terror, is a sudden and excessive fear, in which the strong desire of avoiding the impending danger, gives a sudden, and extraordinary, increase, during its continuance, of the nervous power; and produces the most wonderful, and almost incredible, exertions of strength, and celerity, as there may happen to be occasion, and opportunity, for flight, or necessity for resistance.

The effects of fear are, in some of their circumstances, as hath already been observed, in a note, from Dr. BRYAN ROBINSON[c], the same with those of grief. They both diminish the tone of the muscles, and blood vessels, and lessen the excretions of insensible perspiration, and sweat; but in other respects they differ very considerably. Grief is a permanent, or, if I may be allowed so to term it, a chronic passion; fear a momentary,

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[c] See above, p. 200.

and acute one. As debility of mind, and body, disposes to, and aggravates, both ; so they both tend to increase that debility : but grief produces this effect directly, by an immediate diminution of the muscular, and vascular, tones ; fear only indirectly ; by exciting a general spasm of the muscles, and vessels ; possibly, in some degree, of the whole vascular system, not excepting the large vessels, and even the heart itself, but especially, and conspicuously, of the capillary arteries on the surface of the body ; and exhibiting a resemblance of the several stages of a regular paroxysm of an intermitting fever,—the cold fit,—the hot fit,—and the solution ;—the effects of spasm, —re-action,—and relaxation ;—all of which, in some degree or other, in proportion to the violence and duration of the passion of fear, are instrumental in the production of debility, and a diminution of tones. These stages are particularly observable, when a sudden fright is soon perceived to have arisen from a false alarm. The symptoms of cold, paleness, and trembling, accompanying spasm, are, in such cases, speedily relieved by a glow of warmth over the whole body, and a flushing of the face, which are succeeded by a free perspiration, terminating in a temporary debility, which soon disappears. But when the fear is great, and its cause continues for any considerable length of time, the spasm is more violent, and durable, and the symptoms of re-action propor-

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tionably less conspicuous in their effect of relaxing it; which they do only momentarily, and at intervals; the spasm being obstinately kept up, with some remissions, by the excess of fear, as long as the cause continues; or, even when it has ceased, as long as a vivid impression of it remains upon the mind; and abating as the cause ceases, or the impression abates.

In consternation the mind itself is so discomposed as to be incapable of perceiving, and determining what means to pursue to avoid danger; or of assuming courage to resist it: and the body, by the violence of the vascular, and muscular spasms, is rendered unfit to be acted upon by the mind; and all sensation, and sometimes, even all irritability, seems nearly to cease for a moment, in consequence of the sudden, and enormous exertions, of which they were the causes.

In terror, the mind is, likewise discomposed; but not so confounded as to be insensible of every means of safety. It has neither composure, nor leisure, to deliberate, or to search for the best; but, if there are any, however unlikely, and sometimes, however desperate, it seizes that which most readily offers itself, and which though desperate, appears perhaps to be the only one; and the reaction of the heart, and larger arteries, being less overbalanced by the spasm on the surface, and the muscles being not so much affected as to become unfit instruments of the minds agency;

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it is able to rouse them into such wonderful exertions of strength, or celerity, as they could scarcely put forth on any common occasion, and as are suited to the vehemence of the terror with which it is affected, and the greatness of the obstacles opposed to an escape from the threatening danger.

Thus we see that in fear the spasm is less violent, and the reaction moderate; in consternation, and terror, the spasm is great; but greater in the former, than in the latter; while, at the same time, the reaction in the latter is great, and, so far as the mind is concerned, often excessive; and in the former it is always feeble, at least so far as the mind is concerned, and sometimes none at all.

The symptoms of spasm are paleness, coldness, trembling, a contraction of the features of the face, and perhaps of the bulk of the whole body; the universal spasm of the capillary arteries driving the blood from the surface of the body, and from all the parts to which they are distributed, to the internal parts, and into the larger vessels; and that of the muscles altering their form, shortening their length, and contracting their dimensions. During the prevalence of spasm the pulse is small, weak, and irregular; all evacuations, or at least all excepting those of urine and stool, are diminished or suppressed; the distribution of the circulating fluids is irregular, accordingly as the

small

small arteries in different parts are by nature, or acquired predisposition, more or less disposed to be spasmodically affected; or as the spasm in different parts happens to be more or less intense, and more or less readily overcome. The spasm sometimes so empties the smaller veins, partly, perhaps, by its immediate action upon them, and partly by cutting off the supply from the small arteries, that, if a vein be opened, scarcely a drop of blood will flow from the orifice: it renders wounds mortal which without such a fatal auxiliary might have terminated happily; it causes gangrene; dries up old ulcers, issues, and setons; and has been known to produce, in consequence of this suppression of accustomed evacuations, dangerous asthmas, spasmodic colics, and other alarming complaints; it suppresses hemorrhages, the menses, the lochia, and the milk; strikes in eruptions, as in the small-pox, measles, and other kinds of efflorescences in fevers; and, by its influence in contracting the stomach, intestines, and biliary ducts, in diminishing the tone of the whole alimentary canal, and impeding digestion, as well as suppresing the alvine evacuation, it produces jaundice, hysterical and hypochondriacal affections, in those persons in particular who are subject to them, distentions and pains in the bowels, and all the variety of symptoms attending on flatulency, and indigestion.

The blood being thus driven back by the spasm

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of the small vessels towards its source, and accumulated in the large vessels in the neighbourhood of the heart, and pressing from the veins to be transmitted by that organ in the regular course of circulation, faster than its accumulation in the large arteries will suffer it to be transmitted, a sense of uneasiness, and anxiety, is produced, the large veins and arteries, are both at first distended, and afterwards the arteries more, and the veins less so, it is stimulated into frequent, and often fruitless action, tending to overcome the spasm, and throw off the load of accumulated blood, which oppress it; and the lungs being in like manner overloaded, a quick, and difficult, respiration accompanies, and increases the anxiety.

When the cause of fear is not very great, or quickly ceases, the spasm, being slight, or soon spontaneously giving way as its cause disappears, is readily conquered, and ease speedily obtained. But where the cause is of great magnitude, and subsists long, the efforts of the heart are of but little efficacy in overcoming the spasmodic influence of fear: for while the affection of the mind still continues unabated, the symptoms of spasm will still subsist, and predominate. During this unequal contest; in which not only the exertions of the heart are enfeebled, and disordered, by the impediment opposed to them by the quantity of blood pressing upon it on every side, but, possibly,

bly, it may itself be spasmodically affected, as well as every other part of the body capable of motion, whether voluntary or involuntary; the pulse varies, as the vigour of the heart rises or falls; as it is roused into animated resistance, or gives way to the superior force of its antagonist; and is, accordingly, quick, weak, hard, full, throbbing, soft, small, undulating, irregular, or even intermitting, and sometimes ceases altogether: whence palpitations, swooning, and even death itself. And as in this struggle it may happen, from some predisposition in the constitution, or from some accidental circumstance, that the blood may be determined more plentifully to some particular part, than to others; or such part may be more liable to be injured; if it be thus copiously distributed to the head, it may produce apoplexies, epilepsies, palsies, or spasmodic symptoms; if to the lungs, it may occasion difficulty of breathing, a sense of suffocation, spitting of blood, inflammation, a large secretion of mucus, or of matter:—if determined to the uterus, in the time of gestation, it may procure abortion; in the time of menstruation, or in persons subject to such discharges, at other times, it may cause profuse menstrual evacuations: and both in the time of gestation, and of lying-in, it has been known to raise tubercles in the breast, probably in consequence of a retention and coagulation of the milk, which have sometimes ended in ill conditioned

ditioned, and cancerous ulcers. And as ulcerations in the lips, and erysipelatous inflammation in various parts of the body, have been observed to succeed the perturbation of terror, they have not unreasonably been attributed to the disorder excited in the circulation by this agitating passion.

Since the effects of fear upon the body, and the symptoms of a febrile paroxysm, so exactly resemble each other, it is not at all wonderful that fear alone, without the assistance of any external cause, should give rise to a fever; and in such as are of a bad habit of body, of the very worst kind, and attended with the most alarming debility: or that terror immediately preceding, or exactly coinciding with, the accession of a fever, originating from some other cause, should produce the most violent symptoms; and add greatly to the danger previously existing; or create danger where before there was none; or, at least, should so change the appearance of the disease, as to deceive the most skilful physician, who might not happen to be acquainted with this circumstance, into an apprehension of more danger than a knowledge of the real nature of the fever would warrant.

Nor is it wonderful that fear should dispose the body to the admission, and aggravate the violence, of pestilential, variolous, and putrid infections; since, not only the effect of fear, and the

symptoms

symptoms of a fever, are exceedingly similar, but the whole body, not excepting the heart itself, being much enfeebled by the general spasm attendant upon fear, it is not difficult to conceive why such infectious miasmata as act upon the body in a similar manner, and whose malignancy depends, in a great measure, on the diminution of the force and vigour of the heart, should be most easily received into, and retained by, such bodies as are already debilitated, and prepared for them, by the influence of fear; and, when so received, why they should excite the most alarming symptoms and commit the most dreadful depredations. It is, likewise, easy to conceive, why fear should be of a most dangerous tendency, and ought most carefully to be guarded against, in such diseases already existing: why it is particularly mischievous in exanthematous fevers, by preventing, or repelling, the eruption; and in all fevers at the approach of a crisis, by disturbing the salutary operation of Nature, and suppressing the critical evacuation by which she was meditating to free the body from the disease: and why, as fear more readily seizes upon, so it more grievously afflicts, and debilitates, those who are already in a state of weakness, and debility; and is, in a word, of most dangerous operation on all such as have been exhausted by any large evacuation, or other means; or who are affected with diseases accompanied

panied with spasmodic symptoms, or any great diminution of tone; or whose vital powers, though considering their advanced period of life, they are apparently good, have yet felt the refrigerating and depressing influence of age.

While the cause of fear remains unabated, the re-action of the heart may produce partial, and temporary relaxations; or rather, perhaps, the violence of the spasms themselves; according to the maxim that spasm and relaxation mutually generate each other; and from one or both these causes, may arise those cold clammy sweats which so commonly affect persons under the influence of this passion: but the spasm will continue to predominate, till, the cause ceasing, or abating, it will at length give way; the natural warmth will gradually return; a more copious, regular, and durable perspiration will succeed; the sphincters will be relaxed; irritability revived; the oscillatory motions of the small arteries renewed; though at first imperfectly, and unequally; and the balance of circulation to the surface will begin to resume its due equilibrium; which, however, not being at once regularly and perfectly restored, the blood, hitherto restrained within the narrow limits of a confined circulation, and the natural excretions hitherto suppressed, will be urged on by the violence of re-action, and the precipitancy of having overcome opposition, with unusual exertion

ertion and activity, and force open a passage wherever they find the least resistance; whence the state of solution is not uncommonly accompanied with diarrhœa, a flow of pale urine, of the menses, even when suppressed, of the lochia, and sometimes, as we are told, with an involuntary emission of the seminal fluid; accordingly as particular combinations of the circumstances just mentioned happen to determine.

But, besides the disorders, and disturbances, above enumerated, insanity of the worst, and sometimes of the most obstinate kind, is a frequent consequence of great and excessive terror; and, when it arises from this cause, it usually commences immediately, and retains the character, and often the very object, of the passion which gave it birth.

Fear and terror are adapted to produce insanity, by the liveliness of the impression, from which the mind cannot afterward free itself; by the activity of the brain, necessarily accompanying so violent an emotion; and by the sudden and extraordinary determination of blood to that organ: the agency of all which natural effects of this passion, in the production of insanity, will be much promoted, wherever they meet with a temper of mind peculiarly favourable to, and susceptible of the agitation of excessive terror; and a constitution of brain disposing its medullary substance to

violent,

violent, and permanent vibrations, and its small arteries to rapid oscillations[f].

Under the general head of fear may very properly be reckoned *shame*, which is a dread of censure, or disgrace, or indelicacy; from a consciousness of having acted viciously, or indiscreetly, or so at least as to incur the disapprobation of

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[f] CÆLIUS AURELIANUS gives the following instance of insanity from fear.

"*Turbine* repentino expavescentes atque percussos quosdam sic ait [DEMETRIUS], ut etiam *oblivione* prægestorum afficiantur. Sic denique ARTEMIDORUM grammaticum APOLLONIUS memorat, &c."—*Morb. Diuturnor.* lib. i. c. v. § 151, p. 328. —See above, vol. i. p. 128.

"DEMETRIUS informs us that some persons have been so terrified, and alarmed by a sudden whirlwind, as to forget their past transactions: and that ARTEMIDORUS the grammarian, being terrified by the unexpected appearance of a crocodile, was so much disordered by the fright, that he not only imagined that the animal had devoured his left leg and hand, but even forgot all that he had learned."

See a deplorable history of insanity from terror, terminating in suicide, in BOERHAVII Prælection. Academ. de Morbis Nervorum, tom. ii.

That frightful dreams have produced insanity, is asserted by BOERHAAVE (ib. p. 242.); and as I from experience, can affirm the same.

HOFFMAN relates a case of insanity from terror, in a woman after lying-in; and I have often met with instances, in which the most violent, and alarming symptoms of this disorder have succeeded frights.—*Vide* HOFFM. *Consult. et Respons. Med.* cas. 37. *Operum*, tom. iv. p. 64.

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those persons of whose reprehension, or contempt, we are afraid; or from a constitutional diffidence; or from a nice and lively sense of modesty; and when suddenly excited, on any particular occasion, is accompanied with a flushing heat over the body in general, and particularly in the head, face, neck, and bosom; and often discovers itself by a shy and downcast look, and by the warm suffusion of blushing.

The sudden emotion of shame exciting an increased action of the small arteries of the head and brain; as is evident from the heat and flushing of the head and face, and from the dizziness, throbbing, and noise in the head, which are sometimes all experienced in a very considerable degree, while under the influence of a very lively feeling of this passion; is capable of producing considerable effects; and may, when violent, and attended with much fear, bring on sudden delirium, and insanity; but more is to be dreaded from its becoming permanent and habitual, and adding to the pain of perpetual apprehension from the eyes of every beholder, the fixed corrosion of settled grief, anxiety, dejection, and despair: and how these affections of the mind may favour the introduction of insanity has been pretty fully explained already.

Suspicion, and *jealousy*, are so nearly allied, that the former may be considered as differing from the latter chiefly in degree, and, perhaps,

in some instances, in the nature of its object: *suspicion* being the apprehension of designs formed against us, or wrong done to us, by certain individuals, on whom it rests without proper proof; and *jealousy* being a similar apprehension, lest, by the machinations of another, we should be deprived of some good, of which we are anxious to retain the possession; and which we so highly value, and so much dread the loss of, as without just cause to conceive a fear of such machinations, and to magnify the slightest evidence, in favour of our apprehensions, into the strongest proofs.

This affection is more particularly distinguished by the appellation of jealousy, when the source of suspicion is the love between the sexes, and its principal object the person beloved.

Suspicion and jealousy, may, in the most candid, and generous minds, exist in a high degree, when countenanced by strong appearances, and great probability; and when the object, if not the most worthy, has at least, by some means, acquired the power of interesting the heart. In such cases, they are capable of giving rise to insanity; and especially where the brain is not originally very strong; as well by their own violence, and by that incessant brooding over the object which gave birth to them, inseparable from any great degree of passion; as by the various distressing, and agonizing emotions, which the fancied importance of the object of these malevolent, and uncom-

uncomfortable feelings, and the firm persuasion of their being well grounded, falling little short of complete conviction, and operating on the mind with the force of certainty, cannot fail to excite.

But, more commonly, these painful, and tormenting passions, are the scourges of weak, and gloomy minds; and though they may sometimes be supported on sufficient ground, both of importance, and probability; and may then operate like the same passions in the minds of the candid, and generous; and with more certainty, as being less likely to subside, or to yield to such proofs as would in the candid and generous perfectly eradicate suspicion: yet are they more commonly erected on the smallest foundation; the baseless fabrication of habitual fear, anxiety, and melancholy; and often the mere symptoms of incipient insanity. Habits, therefore, of suspicion and jealousy, since they arise from causes approaching to, and productive of, insanity, and themselves participate considerably of its nature, are prone to terminate in a disorder which they so nearly resemble, and which often originates from the same common causes.

As suspicion, and jealousy, are the apprehension of some particular evil, from an enemy or a rival; so *anxiety* is a general, and habitual fear, of disastrous events; a restless solicitude, which will never admit of the enjoyment of the present

moment, through an unreasonable care for the future; which, while it creates, and magnifies uncertain evil to come, diminishes, or annihilates certain and present good. It is commonly the affection of a weak, and broken spirit, and like suspicion, and jealousy, is a symptom of a timid, gloomy, and unsound mind: and readily sinks into the deepest distress of fixed melancholy, to which it has some resemblance, and of which it seems to be the first stage; and may in the end assume any of the numerous forms of notional, or ideal, insanity.

The last, and not the least important affection of the mind, to be considered, is *religious fear*, or an anxious appprehension of eternal punishment in the life to come. It may derive its origin directly from superstition, and indirectly from enthusiasm; which taking root only in minds weak by nature, or debased by habit, may not only give occasion to superstitious, and fanatical insanity; but, as obviously appears from what has before been said in treating of these disorders[g], and of religious joy[h], and of despair[i], may with facility introduce desponding insanity.

For superstition, which views the Deity as "an

[g] See above, vol. i, p. 212—241.

[h] See p. 201 of this volume.

[i] See p. 240 of this volume.

unreason-

unreasonable, fantastical, and capricious being, whose favour is to be obtained, or anger averted, by idle ceremonies, ridiculous observances, or painful mortifications[j];"—in which, in short, as CICERO remarks, "there is a vain fear of the Gods[k];"—being built upon notions which are not derived from reason, and the nature of things, but owe their existence to the uncertain suggestions of fancy; will vary as fancy varies; and, having no satisfactory, or fixed principles, on which the mind can rest, assured of the good effects of its good and honest intentions, may lead it to fear punishment one day, from a conduct by which on a preceding, it had hoped to draw down a blessing; and to tremble in the anxious uncertainty whether its best intended actions, will be rewarded with good or ill, by a Deity of whose attributes it has formed such crude and indigested conceptions. For as a fantastical, and capricious deity, who appears to us to be governed by the most irrational motives, may be fantastical, and capricious, in his rewards and punishments, our prospects of his favour, or frown, will present no certain, and determined objects; and our hopes of happiness, or fears of misery, will vary as accident shall produce a change of

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[j] See above, vol. i. p. 218.

[k] "In qua [superstitione] inest timor inanis Deorum."—*De Natura Deorum*, lib. i. cap. 42, Ed. DAVISII.

 circum-

circumstances; and will rise, or fall, as our bodily tones are elevated, or depressed; our sensations and perceptions pleasing, or unpleasing; and our spirits high, or low. But as the mind cannot be well at ease in a state of doubt, and uncertainty; and as the observances of superstition are often severe, slavish, and anxious; bodily indisposition, mental debility, and abject terror, to say nothing of other causes, will all frequently contribute to ingraft insanity on superstition, and religious fear.

Enthusiasm[1], being founded in like manner upon the feeble, and unsteady, basis of fancy, though more pleasing in its immediate influence, is perhaps not more certain in its operation, or more happy in its consequences, than superstition. And its hopes being the result of feeling, as well as of fancy; and depending, more directly than those of superstition, upon the state of bodily tones, perceptions and sensations, and animal spirits; and tones elevated, perceptions and sensations rendered pleasing, and spirits animated, above their natural pitch, by mental activity, and exertion, being always succeeded, without the intervention of some other invigorating cause, by proportional remission, weariness, and depression; an easy passage is opened, from the rap-

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[1] See above, vol. i. p. 218.

ture-

THE TAMILNADU ... ANAKAR *

tures of enthusiasm, to the apprehensions, and horrors, of religious fear, and desponding insanity.

VII. *Too great Activity of Imagination.*

The imagination is too active when it is for ever busily employed; is led by the slightest associations to pass with facility from one object to another; is disposed to arrange and connect, by such slight associations, the most dissimilar, and incongruous; and to ramble with rapidity through an endless variety: or dwells incessantly upon the lively, and indelible impression, of some one object of passion, and without abating of its activity, confines itself to the subject of emotion, over every conceivable relation of which, and it is fruitful in the discovery of them, it ranges with incredible avidity.

An over busy imagination implies a too active state of the mind, and brain; and an imagination habitually busy, inplies, that the mind and brain are habitually and constitutionally, of too active a disposition. How such a state of the mind, and brain, is productive of, and how nearly it actually approaches to, a state of insanity, has been shown at large, in treating of too intense application of mind to whatever may long, and deeply engage its attention; and of the influence of the passions.

And though the activity of mind, in a too busy imagination; which is little disposed to rest long upon any one object, but ranges at random from one to another with a celerity which is scarcely to be termed thinking; is much less intense than when the mind is eagerly fixed on the consideration of some one important, or apparently important object, either of study or passion, which engages its whole attention; yet the tendency of a too active imagination to pass, by the slightest associations, from one object to another; to arrange, and connect, by such slight associations, the most dissimilar, and incongruous; as they indicate a nearer approach to, and resemblance of, insanity, than mere intenseness of thinking; and as that vicinity, and similitude, are here supposed to be constitutional; they not only mark a weakness of mind, incompatible with great reasoning powers, and tending to obstruct, and impede our progress, in all the most rational and valuable pursuits of life; but are more frequently instrumental in the production of insanity, by giving energy, and effect, to other causes, which, without such assistance, might more commonly fail to produce it, than mere application of mind, however intense, to one object; or perhaps than any other cause whatever.

For an imagination naturally too active, and fanciful, not only tends to excite, and propagate, that inordinate activity of the brain, so essential

to the existence of insanity; but is capable of giving strength, and efficiency, perhaps to every other agent which may concur in the production of that disorder; and especially of aggravating, and strengthening the passions, by exciting, nourishing, and confirming, prejudice and error; by raising up an army of ideas congenial to their nature, and hostile to reason, and moderation; and thus fomenting, stimulating, and giving habit, and vigour, to their folly, and madness.

Indeed strength of passion, activity of imagination, and erroneous judgment, are so intimately connected, so aid and support each other, and are so opposite to, and destructive of, sound reason, that whenever any of them have arisen to a great height, and flourish in the extreme, they partake of the nature of insanity, from which they differ not so much in kind, as in degree.

The too great activity of imagination here intended, though often combined with, is entirely distinct from genius; which, in proportion as it is connected with it, it tends to diminish. It implies an incapacity of close attention; an inability to retain a number of related objects in the mind, at the same time, and deliberately to compare, and appreciate, their relations; in short, it implies a defect of judgment: but judgment is essential to genius; which cannot exist without a large portion of it, and is then only perfect, when, to a rich vein of imagination, are

added

added the most comprehensive views, and nice discriminations, of this discerning, and governing faculty. For, as the judicious Dr. GERARD very ingeniously remarks, "the finest imagination, totally destitute of assistance from judgment, would in some measure resemble a blind man, who may be very dexterous in groping the right road, but cannot know certainly, whether he continues in it, and has no means of recovering it, if once he strays[m]."

And as genius cannot exist in any eminent degree without judgment; and, as judgment is the power of regulating the activity of imagination, of arresting its too rapid progress, of fixing its attention, and of directing its operations, and exertions, to some certain, proper, and important end; so the too active state of imagination which I here consider as subversive of mental perfection, and productive of insanity, is such an activity as the mind has not power to check, as the judgment cannot regulate, or control; which, when not in some degree fixed by passion, flits at random from object to object, and is incompatible with that steady attention, and that just discrimination of suitable and unsuitable, of similitude and difference, of symmetry and disproportion, of regularity and disorder, of beauty and deformity, of truth and falshood, of right and wrong,

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[m] Essay on Genius, p. 82.

which

which are not to be acquired without patient observation, and exact judgment, so essential to the operations, and existence, of true genius.

And so prone is imagination, where it is active, to run into this error of rambling without its proper guide; and to be impatient of the slow proceedings of minute attention, and the severe constraint of scrupulous judgment; that true genius is as rare, as it is excellent; and activity of imagination, which is no uncommon endowment, and which, as well as judgment, is essential to genius, is more frequently the parent of folly, than the companion, and assistant, of judgment, in the production, and support, of those great, and sublime exertions, to which their united operation is capable of raising the human mind.

Since activity and imagination is so nearly related to folly; and since, wherever it exists in any great degree, whether by nature, by habit, or by the occasional influence of some strong emotion; and particularly by love, a passion in which imagination reigns unrivalled; it must frequently put the brain into a state nearly resembling that which is connected with a disordered mind; it is calculated to give occasion to insanity, as well by the very active vibrations which it excites in the fibres and vessels of the brain, as by its natural alliance with folly. It is with much propriety, therefore, that the

the Poet of Nature[n] has connected, by this common character of imagination, the poet, the lover, and the madman.

Of the influence of imagination, in the production of insanity, I shall have occasion to make some farther observations, in treating of the next source of this disorder, to which I now proceed.

VIII. *Imbecillity of Mind.*

By *imbecillity of mind*, I understand that debilitated state of its faculties, which renders it incapable of withdrawing its attention from any train of thinking in which it is engaged, disposes it to be carried away by the impulse of the passions, or deluded by the hasty and superficial combinations of imagination; and is subversive of self-command, rational conduct, and sound judgment.

A weak judgment, therefore, where it exists originally, and by nature, as it often appears to do, may be no inconsiderable instrument in the production of insanity. How it may give occasion to this disorder, will be obvious, from a re-

[n] The lunatic, the lover, and the poet,
Are of imagination all compact:
One sees more devils, &c. &c.
SHAKESPEARE's *Midsummer Night's dream*, act. v. scene i.

collection

collection of what has been said on the effects of an inability to withdraw the attention of the mind from any particular train of thinking; and of the influence of the passions; and from a consideration of what has just been advanced, relative to too great activity of imagination.

But though imbecillity of mind, and weakness of judgment, may often be original, and natural; they are more frequently, perhaps, the offspring of the passions, imagination, and prejudices; which, by a thousand accidental, and imperceptible, associations, have a wonderful efficacy in deceiving, and impairing the judgment, distorting, and weakening, the operation of reasoning, and exposing the mind to almost every species of error, and delusion.

Indeed such is the power of the passions, imagination, and prejudices, united, as almost totally to confound truth and falshood, right and wrong; and it may, I believe, be laid down as an undoubted maxim, that under their influence, we may persuade ourselves to believe whatever we please; or rather, whatever the habitual tendency of our minds inclines us to believe*: not only things the

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* "Plura multo homines judicant odio, aut amore, aut cupiditate, aut iracundia, aut dolore, aut lætitia, aut spe, aut timore, aut errore, aut aliqua permotione mentis, quam veritate, aut præscripto, aut juris norma aliqua, aut judicii formula,

the truth of which has not been, or cannot be demonstrated; but which are opposed by a very high degree of probable evidence, or of which it were not very difficult to demonstrate the falshood.

Thus one political party, or one religious sect, or an individual any way under the influence of strong prejudice, will believe, on the slightest grounds, whatever is ill of another party, or sect, or individual. Infidels of some sorts, will not believe the strongest evidence in favour of the Christian revelation; but will give credit to the weakest reasonings, or the idlest stories, against it, or where it is no way concerned[p]. These are persons

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mula, aut legibus."—CICERON. *de Oratore*, lib. ii. n. 178. *Oper.* a GRUT. et GRON. edit. 8vo. p. 345.

"For men are more frequently influenced in their judgment by hatred, or love, or desire, or anger, or grief, or joy, or hope, or fear, or error, or some other passion of the mind, than by truth, or by any established decree, or by any rule of right, or by any regular form of judgment, or by the laws."

p I mean not to comprehend in this censure the philosophical deists; such as really deserve that appellation; among whom are, I am persuaded, men of undoubted abilities, and exalted virtues, whose names ought ever to be mentioned with respect, and affection. In this class must be reckoned HUME, though too much led astray by the pride of originality, and the affectation of novelty; and highly blameable for his prejudices against the clergy: and ROUSSEAU, though at length driven into insanity, by the liveliness of his imagination, and the sensibility of his passions: but VOLTAIRE, I fear, must be excluded; the brightness of whose genius would have shed a lustre

persons of weak minds, and small understandings; who, with the meanest reasoning powers, have the vanity to fancy themselves sagacious observers, acute reasoners, and superior to the superstitious prejudices of the vulgar. Such is the power of the passions; such the force of habit; such the delusion of wrong associations, and of an incorrect, and unsubdued imagination.

The cause of all these errors is imbecillity of mind; in the production of which, though the agency of the passions, of habit, and of wrong associations, and prejudice, is added to that of an incorrect, and unsubdued imagination; yet the chief source of this imbecillity, when not derived from the original structure, or consequent injury, of the brain, seems to be a too active, and ill conducted imagination; without the undue influence of which our very passions, which owe much of their violence to imagination, would become gentle and temperate, our prejudices would never be formed, or soon cease, and judgment, however weak by nature, would lead us into no material error.

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lustre on his name, and have made him the admiration and delight of his own, and of future ages; had it not been obscured by certain dark, and unpleasing, shades in his character, which lessen our esteem for him as a man; and, while they confirm to him the title of a wit, degrade him from the rank of a philosopher.

For

For it is the province of fancy to collect and bring together ideas, which, when unaided by due deliberation, and sound judgment, it is disposed to combine by any, the slightest, most arbitrary, and accidental relations; and when, therefore, in a state of activity, to present to the mind, at one view, or in quick succession, and to connect and associate, when thus presented, whatever in its rapid progress it perceives to possess any such slender relations.

Whereas the province of reason, and judgment, is to consider the ideas which are presented to them with deliberate attention, and to reject all slight, arbitrary, and accidental relations; and only to arrange, combine, and associate our ideas, according to those relations which are strong, permanent, and founded on the true and proper nature of things.

In other words, the one deals in imaginary relations; the other in real ones; the one in the wildness of invention, and the brilliancy of wit; the other in the soberness of truth and demonstration.

When, therefore, the mind gives that credit to the slight, accidental, and arbitrary combinations of fancy, which is only due to the intimate, permanent, and natural ones of reason, it is then in an unsound, and sickly state; and the person so disordered in understanding, and so irrationally judging, is to be considered as insane; though the

the disorder may be in so low a degree as scarcely to be perceptible, and he may not be deemed such by the bulk of mankind.

This is the state of mind which I have described as constituting notional insanity. It has no relation to ideal insanity, as such: but when combined with passion of any considerable duration, or violence; as sooner, or later, it generally is; such intense, incessant, and uniform activity of mind, is at length produced, as renders it exceedingly liable to assume the symptoms of ideal, and phrenitic insanity.

PROXIMATE CAUSES.

Scarcely any two cases of what is nominally, the same disease, are, in every symptom, exactly alike; there being usually more or less difference, both in the number, and nature, of the symptoms, and in their degrees of violence: and yet they are not without propriety called by the same name; since they agree in those leading symptoms which nosologists have termed pathognomonic, and consider as essential to, and characteristic of, the disease: but as the concourse of symptoms, or, in other words, as the disease, varies, while the name remains unchanged; so the proximate, or physical, cause,—that cause

which existing, continuing, changing, or ceasing, the disease must exist, continue, change, or cease[q],—will of course vary also: for though the name of the disease be still the same, yet is its whole, and real nature, different: a circumstance which, in considering the proximate causes of diseases, cannot be too carefully attended to.

As it is almost, perhaps altogether, impossible to arrive at the knowledge of the true, and proximate, or physical cause, of most disorders, we must, for the greatest part, rest satisfied with a few imperfect conjectures on this head; and may think ourselves happy, if, by accurate observation, and just deduction from plain and undoubted facts, we can discover some very general cause, which always accompanies the disorder; or certain specific causes, which are, one or other of them, inseparable from the several species; and can invariably observe that such cause, or causes, being taken away, the disease either immediately, or speedily, ceases.

The proximate causes of insanity, from whatever remote cause, or causes, it may derive its origin, is, without doubt, seated in the brain. For since its action is immediately on the mind itself, whose operations it powerfully influences, and greatly deranges; its situation must be in

[q] GAUBII Institut. Patholog. Medicinal. § 61, p. 18.—See above, p. 3.

that

that organ which is universally, and justly, acknowledged to be the immediate seat of union between the body and mind; and on whose sound, and perfect state, the perfect operations of the latter, during that union, seem entirely to depend.

In confirmation of this, it may be observed, that in all violent degrees of insanity; as in the phrenitic, highly maniacal, or rapidly incoherent, or in any of the species of notional insanity when approaching to a phrenitic state; there is always an increased activity, and turgescency, of the vessels of the brain, as appears obvious from the flushing of the face, redness of the eyes, heat and pain of the head, activity of imagination, and perpetual watching, most, or all of which, may usually be observed in this state of insanity.

It may also be remarked, that some of the remote causes of this disorder are seated in the brain; as water in its ventricles, in its substance, and between its membrances; and the various other disordered states of this organ, and its connexions, enumerated among the *Appearances on Dissection*:—that it is often combined with other diseases whose immediate source is indisputably in the brain; as dizziness, deafness, a sense of weight, stricture, and numbness, across the forehead, upon the crown, or at the back part, of the head, habitual headach, pain over the eyes, epilepsy, palsy, apoplexy, or the like:—and that

such disorders of the nerves, arising from causes whose situation is remote from the brain, as either obstruct, deprave, or excite, false sensation, and frequently terminate in insanity; as well as its other remote causes which are not immediately connected with the head; are often known to exist, in a great degree, without exciting the slightest symptom of that disorder.

As the proximate cause of insanity always resides in the brain; so it is obvious that it must, some way or other, so affect it, and excite in it such motions, or vibrations, as shall give rise to those kinds of ideas, or notions, which enter into the definition already given of insanity. If, therefore, the seat of the originally exciting cause be in any other part of the body, it must first sympathetically produce a determination of blood to the head, and a change in the circulation, or vibratory motions, of the brain; before it can excite the smallest mental disorder: and, even those causes which immediately, and confessedly, act upon the brain; as intense application of mind, or violent passions; will be insufficient for the production of insanity, or at least will produce but a temporary one, till they have effected some great, and permanent change, of this kind.

And as such great, and permanent change, necessary to the existence of insanity, is most frequently the effect of an increased activity of the small arteries, and a consequent turgescency

of

of the whole vascular system of the brain; which seldom fail to accompany the beginning, and are never absent from the violent states, of this disorder; we are led by a knowledge of this cause, to very useful, and important, practical conclusions, and directed to a rational method of cure; since it points out to us the great advantage which we may expect to derive from evacuations in almost every recent, and violent case of insanity; and especially from topical evacuations from the head; and from such other means, as can, in any way, divert the impetus of the blood from the vessels of the brain, and abate their preternatural activity. And, happily, the obvious symptoms which usually accompany this increased activity, and turgescency, of the vessels of the brain, readily indicate its existence, and its degree of violence. But as the brain may be in a plethoric state, when the rest of the body is not so; most of the remote causes of insanity being capable of exciting a turgescency in the brain, independently of any general fulness of the vascular system; we may see the necessity of distinguishing when there is a general, and when only a local, plenitude; and of regulating accordingly, our evacuations, and other means of relieving the head.

It will appear obvious, too, from what has just been remarked above, why insanity may often remain, when the original exciting cause is taken

away. This frequently happens, when the cause has continued for a long time unsuspected, or unsubdued; and has, therefore, been gradually the occasion of such a change in the economy of the brain, as cannot easily be rectified; though the original, and exciting, cause, on which it now no longer depends for existence, should be taken away. Thus when insanity has taken its rise from a fever, or a suppression of the menses, the disorder often remains long after these causes have been removed; and especially if the fever has been obstinate, and violent; or it has been long before the suppressed evacuation could be restored. This, among other reasons, shews the importance of early, and vigorous help, in these most distressing, and formidable disorders.

Of the real proximate, or physical, cause, I can say but little. The attempt to discover, or to explain it, would, I fear, be fruitless. This, however, I think I may safely say, that, as the nearest, and most specific causes, which we can discover, seem to be either a gradual congestion of fluids, of some kind or other, in the brain; or such a sudden determination of the circulating fluids to that organ, as produces the same effect; or any other cause of preternatural compression of the brain; so the true, and actual, proximate cause of insanity, of whatever species, is not only seated in the brain, but is such a degree of compression, or condensation, of the medullary sub-

stance

stance of the brain,—or of that part of it, by means of which the intercourse between the mind and body, is carried on, and on whose perfect and healthful tone, or texture, or consistency, the perfection of that intercourse, and of all the mental operations, depends,—as gives rise to images in the brain, as if existing externally, which have either no existence in nature, or do not exist as they are at that time, or in that place, supposed to exist; or to such notions as are obviously absurd in their kind, or degree, and could only originate from an unsound state, and undue operation, of the brain. But what are the specific degrees of compression, or condensation; what are precisely the parts compressed, or condensed; how variations in these respects produce variations of insanity; and what are those variations; must, I fear, for ever remain among the deficiencies of our knowledge of these nice, and intricate, matters. There are, however, other variations, connected with the proximate causes of insanity, which are more obvious; and evidently differ in kind and degree, in the various species, and degrees of that disorder. These variations may be reduced, I think to four heads. For—

I. The small arteries of the brain may be in too active a state, and may produce—by such undue activity,—turgescency, compression, and an approach to inflammation; during which state if an

insane person die, not only the veins, and arteries, are all found turgid with blood, but the brain so expands itself on the taking off of the upper hemisphere of the skull, that no compression can again reduce it within its former boundaries :—Or—

II. The brain may be compressed by a gradual accumulation in its veins, and sinuses, without any increased activity of the arteries :—Or—

III. Water, or other preternatural substances, may occupy a place, which does not belong to them, in the brain ; or parts enlarged by disease may occupy too great a space ; and, by their bulk, may compress its medullary substance :—Or—

IV. There may be a change in the intimate, and invisible texture, in what HARTLEY calls the infinitesimal particles, of the medullary substance of the brain ; gradually, and sensibly, produced ; either without the presence, or intervention, of any of the above obvious causes ; or by the mediation of one, or other, of them, from which it primarily derived its origin.—Indeed all these causes may not only be combined with, but may variously originate from, one another. Thus—

1. The first cause, or a too active state of the small arteries in the brain, may [II] produce an accumu-

accumulation of blood in the veins, and sinuses of the brain:—may [III] generate water, or other preternatural, or morbid substances, in that organ—or [IV] may occasion an alteration in its texture.

2. Compression from an accumulation of blood in the veins and sinuses, may [I] excite a too active state of the small arteries, with turgescency, and compression of the medullary substance from such turgescency;—or [III] may give occasion to the generation of water, or other preternatural substances, in the brain:—or [IV] to an alteration in its texture.

3. Water, or other preternatural substances, in the brain, may [I] by compression, and irritation, be the causes of too great activity of the arteries:—or [II] may by the same means, occasion an accumulation of blood in the veins, and sinuses; on the one hand, by stimulating to too great activity the small arteries, and on the other, by impeding the circulation of the blood through the veins, and sinuses, and obstructing its return from the head;—or [IV] may effect a change in the texture of the medullary substance of the brain.

4. Or a preternatural texture of the brain may be the origin [I] of increased activity of the small arteries,

arteries, by obstructing the passage of the blood through them, and variously stimulating them by previously exciting undue attention of mind, inordinate passions, or watchfulness, or in any other way giving rise to too intense, and unvaried thinking, or to too active a state of imagination :—[II] of accumulation of blood in the veins, and sinuses; by the same means which gave rise to the too active state of the small arteries; and, especially, in consequence of such increased activity ;—and [III] in the same way, of water, and other preternatural substances, in the brain.

But that we may the better understand how these variations of the proximate cause of insanity, are instrumental in the production of its various species, it will be proper to take a short view of the natural operations of the mind, and brain, relative to ideas, and notions; and then to consider the manner, in which these several preternatural states of the brain disturb the natural current, and confound the ordinary, and established connexions, of our notions, and ideas. After which I shall endeavour to show how such states are related to, and in what manner they are productive of, the several species of insanity.

Sensations, which are the instruments, and vehicles, and furnish the materials, of all we know, are conveyed to the mind, as has been explained already, by certain vibrations or motions, excited by their objects on the medullary

substance

substance of the nerves, or of some subtile matter contained in them, on which their power, or irritability, depends, and propagated along the nerves to the brain: where, as they are perceived by the mind, they are termed *ideas*.

The vibrations thus excited in the brain by external objects, have certain specific qualities, corresponding to the objects which excited them; so that each object, in nature, has its specific, and determinate vibrations, in the brain: and these vibrations excite in the mind distinct, and specific, ideas, of the objects to which they relate.

Such ideas may be excited in the mind, at any time during the absence of their objects, by whatever is capable of renewing the specific vibrations which belong to them.

The absence of their proper object is readily supplied, and their specific vibrations are renewed, by those accidental, natural, or arbitrary associations, according to the order of which the ideas of external objects are, as it were reposited in the mind, and, which result from its natural propensity to bring into one view, and compare, objects, and their ideal representations, and either to disjoin, or to unite them together. For when objects have thus passed in review before the mind, or have any way been presented to its observation, at the same time, those vibrations which have

have once existed together, or in immediate succession, are apt, on future occasions, to vibrate at the same time, or to succeed each other in the same order, and connexion.

The perception that the mind has of the relations, and qualities, of such objects of sense, and whatever apprehensions, or sentiments, it can deduce from its perception, and experience, of such relations, and qualities, are properly called *notions*; and are accompanied with corresponding vibrations, derived from, and compounded of, the various sensible vibrations to which they relate: and are apt to recur to the mind in certain and regular trains, according to the order of the sensible, and notional vibrations, with which they are associated and combined.

When these ideal and notional vibrations, occur to the mind in their natural order, and retain their original, natural, and rational associations; and the mind can retard, or accelerate, their progress, to a certain degree, at pleasure; and can deliberately consider them, and compare the past with the present; when, of course, memory holds her seat, connecting consciousness, as HARTLEY terms it, is unimpaired, and the associations of truth, and decency, and propriety, and virtue, remain uninjured; in short, when the mind can regulate properly all its operations; it is then in a sound, and rational state: but in proportion

portion as the reverse of this takes place, in such proportion is it in a state of unsoundness, and insanity.

Now such an interruption of the regular course of the vibrations of the brain, and of the right operations of the mind, may be produced by each of the variations, above enumerated, of the proximate cause of insanity.

1. Too active a state of the small arteries of the brain, and the consequent turgescency, compression, and inflammatory tendency, give rise to high spirits; a quick and disorderly succession of ideas, and notions; vivid and lively conceptions; intense attention of mind to its own internal operations, without much regarding what passes without; such animated revival of internal sensitive vibrations, in the absence of their external objects, as deceives the mind into a belief of their actual presence; unnatural, and absurd, combinations of sensitive, and of notional vibrations, with themselves, and with each other; violent, unreasonable, ridiculous, and inconsistent emotions; excessive bodily exertions, the result of such emotions; indecent, dangerous, and absurd conduct; and a total want of a sense of delicacy, propriety, and virtue: and sometimes the compression of the brain becomes so great, as almost entirely to destroy the knowledge, and perception of external objects; greatly

to

to diminish irritably, and vigour; and finally, to extinguish the powers of life altogether.

2. When the brain is compressed by a gradual accumulation of blood in the veins, and sinuses, without any increased activity of the small arteries; such compression at first only excites head-ach, a painful sensation of numbness, and weight, in some part of the head, as across the forehead, on the crown, or on the back part of the head, dizziness, paralytic trembling more or less, great nervous debility, diminution of tone, indolence, restlessness, spasms, and uncomfortable feelings, over the whole body, indigestion, hypochondriacal symptoms, low spirits, dejection, and melancholy; and the mind, unavoidably contracting an habitual gloominess, and being disposed to dwell, with little intermission, upon some particular ideas of distress which have happened to gain possession of its attention, soon loses its capacity of judging truly of things; and the vessels of the brain becoming, at length, active, by means of the intense, and passionate, attention of the mind to the particular objects of its distress; that organ begins to acquire all the conditions of the preceding cause, and the insanity all those symptoms to which that cause is disposed to give occasion.

3. Water in the brain, may produce, at first, symptoms

symptoms of debility, indigestion, spasm, gloom and dejection, dizziness, and other nervous, and paralytic symptoms, resembling those arising from venous accumulation, and compression: but as it increases, it may often, I think, be discriminated, by dimness and imperfection of sight, enlargement of the pupils of the eyes, and staggering, and tripping, in walking: occasionally, by irritation, it may excite some degree of the first state; and is frequently, when very considerable, accompanied with delirious rambling, incoherency, stupidity, and idiotism, and terminates in death.—Other preternatural substances may give occasion to similar effects; with more, or less, violence of delirium, in such proportion as the compression, and irritation, of the brain, happens to be greater or less, and to excite more or less inflammatory activity in its vessels. But as water in the brain often originates from the first state of the proximate cause; as well as sometimes, perhaps, from the second, from the beginnings of which its symptoms do not seem to afford any certain distinction; the symptoms of increased activity of the arteries, often, for this reason, precede those arising from water in the brain.

4. The change in the intimate texture of the medullary substance of the brain, may give rise to permanent disorders in its natural vibrations, without so much deranging its operations, as to

withdraw

withdraw the attention of the mind from external objects; or greatly, or very generally, to confound its associations: whence may arise dejection, and melancholy, or too great flow of spirits, or frequent transitions from one to the other, or strange fancies, and deceptions, and a great variety of other notional, or maniacal, symptoms, intermixed with a large portion of apparently good sense, and sound reason;—or the alteration in its texture may be so great, that the procedure of its vibrations, and the associations, and operations, of the mind, may be perfectly deranged, and incoherent; and sensible vibrations may sometimes recur in the absence of their objects, so as to produce a persuasion of their actual presence; without any such injury of the brain as shall give occasion to much irritation in it, or produce any extraordinary activity of the small arteries, intense ideal delirium, symptoms of great compression, debility of body, and tones, much torpor of the natural, or the smallest perceptible injury of the vital, functions:—or the altered texture of the brain, or the insanity arising from it, may, at intervals, excite the activity of its arterious system; and may produce temporary fits of more violent insanity, in which the passions may be greatly agitated, the delirium may be perpetually, and intensely, ideal, and the natural, and vital functions, may be much disturbed.

The third and fourth variations of the proxi-

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mate cause of insanity, exist, I believe, much less commonly in the beginning of the disorder, and give less frequent occasion to its first attacks, than the first and second; of one or other of which, they are more usually the consequences; and are, for the most part, the attendants of inveterate, and incurable insanity. This consideration will account for their being so frequently met with on opening the heads of insane persons, after death.* And as increased activity of the small arteries is so common, and compression so inseparable, a companion of insanity; we need not wonder that MORGAGNI should in so many instances meet with a preternatural firmness, and solidity, of the medullary substance of the brain, as to be tempted to imagine that such hardness of that organ was the proximate cause of this disorder. And though I believe that water in the brain is rarely the original cause of insanity, and most frequently the attendant of an inveterate disorder; yet I must confess that I have met with instances in which it has appeared to have been the sole cause; and that I have seen it generated in a very short time, in deliriums originating from a highly inflammatory state of the brain.

Having premised thus much in general concerning the proximate, or rather those approaching nearest to the proximate, causes of insanity; I shall now endeavour to apply what has been advanced, to the particular species; and to point

out the agency of the several causes, in the production of each.

1. *Phrenitic insanity*[1] may ingraft itself upon every other species, whether ideal, or notional; as may easily be collected from what has been said upon each of them, and upon the various remote causes of insanity; and may, therefore, be in some way connected with all the four proximate causes of this disorder: but its own proper, and peculiar cause, is, invariably, an increased, and almost inflammatory, activity of the small arteries, with the consequent turgescency, and compression, of the brain. This is evident from the symptoms; and is demonstrated by dissection; since all, I believe, who die in this state, are found with its arteries, and veins, full of blood; and with the brain so turgid as to burst from its confinement, as soon as the upper part of the skull is taken off; and though water is, likewise, usually met with, it is not generally found in any large quantity, and appears to be merely the consequence of the inflammatory state of the brain. But though phrenitic insanity may ingraft itself upon all the other species, it has no necessary dependence, either upon them, or their causes, so far as they differ from its own; and may begin, and terminate, without being connected

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[1] See above, vol. i. p. 94.

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with any of them; so little truth is there in the opinion of many of the moderns, and most of the ancients, that it is the offspring of melancholy; or nothing more than melancholy elevated to a degree of fury[a].

2. *Incoherent insanity*[b], consisting of four varieties, acknowledges various causes.

The first variety, or *ardent* incoherent insanity, is a near approach to, and often merely an incipient state of, phrenitic insanity, and is usually accompanied with incessant talking, or raving, either on the same subject, or with sudden transitions from one subject to another, as images and fancies occur. It has for its cause such an activity of the small arteries of the brain, and such a consequent degree of turgescency, and compression, as produce high spirits, delirious images, and a rapid flow of ideas that are very slightly, or not at all, connected. When it is original, and has not arisen out of any other variety of incoherent, or out of any other species of ideal, or out of notional, insanity, it owns no other cause; but when it is derived from any of the other sorts, this activity of the small vessels of the brain will be combined with the other causes from whence they took their rise. In the former case it is

[a] See above, vol. i. p. 45.

[b] See above, vol. i. p. 104.

usually curable, and often with ease, and celerity; in the latter, it is more or less so, according to the nature, and duration, of the original cause.

The second variety of incoherent insanity, which I have termed *flighty*, consists in that kind of active state of the brain which occasions flightiness of imagination, without any tendency to a phrenitic state; and exhibits sudden transitions, and rapid flights of fancy. It depends immediately on such activity of circulation through the small arteries of the brain, as excites lively vibrations, in quick, and unconnected, or very slightly connected, successions, and a great flow of spirits; but is without that intenseness, and not productive of that great turgescency, which occasions phrenitic insanity; and is unaccompanied with that earnestness, and solicitude of mind, which tend to introduce it. It may arise out of maniacal, or out of whimsical, flighty, or other species of notional, insanity; and its immediate cause may be united with the second, third, or fourth proximate cause; but most frequently I think, with the fourth; and least so with the third, which seems to be more disposed to stupify, than to enliven the imagination.

The third variety of incoherent insanity, which peculiarly merits the name of *unconnected*, arises out of such a state of the brain, as produces, perpetually, trains of apparently unconnected, or very slightly connected, ideas; with calm, and,

not

not incessant, but frequent, incoherent talking, or muttering; without the smallest tendency to a phrenitic state, or any flightiness of imagination; and is nearly related to the third species of idiotism[u], from which it is chiefly distinguished by occasional indications of ideal delirium. This variety always, I imagine, owes its existence to the fourth proximate cause of insanity; and is rarely, if ever, capable of receiving a cure. It seems never to be original, but always to succeed some other species of ideal, or notional insanity.

In the fourth and last variety, there is a great defect of memory, occasioned by such a state of the brain as produces an almost total privation of thought, or a fixed and senseless uniformity, of the mental operations. It is, therefore, of two sorts, and is either *stupid* and senseless, or *absent* and musing: the first being more especially accompanied with great defect of memory, and resembling a good deal the delirium of old age; and the second with a sluggishness of the mental faculties, and an inability to attend to more than one object at once, and equal inability to remove the attention from one object to another. This variety seems to originate from a great compression, or great compactness and solidity, of the brain, and sometimes from both. In a few instances, I believe, it owes these conditions to the

[u] See above, vol. i. p. 65.

second proximate cause; in which case, though obstinate, and of long duration, it is sometimes cured: but more frequently it seems to be incurable, and to derive its origin from the third, or fourth, proximate cause, or from both united.

3. *Maniacal insanity*[*], growing out of every other species of insanity, may originate from any of the numerous causes of this disorder; but being an approach to a phrenitic state, seems ever to be accompanied with that degree of turgescency, which readily excites a too great activity of the brain, and too intense sensitive vibrations, in the absence of the objects to which they relate; and which, in proportion, as it is greater, or less, gives occasion to maniacal symptoms, which are more, or less, perpetual, and intense, and approach to, or recede from, those of phrenitic insanity.

When maniacal insanity arises from the first cause only, without the participation of any of the others, it may be violent, and uninterrupted, and may nearly approach to phrenitic insanity; but the activity of the brain, having no inveterate and chronic cause, may for the most part be easily appeased, and the insanity readily overcome, by proper medical treatment.—When from the se-

[*] See above, vol. i. p. 110.

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cond cause, it may be less violent, and be interrupted by longer intervals; but, arising from a more fixed and obstinate cause, will usually give way with more difficulty, and yield only to repeated attacks, and long continued efforts.—The third and fourth, causes, afford but little hope of a perfect cure; since, though the maniacal symptoms, in the former case, may have considerable intermissions, and seem, on such occasions, entirely to cease, the symptoms of mental stupidity, nervous imbecillity, and bodily decay, will seldom terminate but in perfect idiotism, and premature death; and though, in the latter case, there may be very long intervals, and good bodily health, the operations of the mind will rarely be completely restored, returns of a high degree of delirium will be always to be apprehended, and an incurable, but often healthy idiotism, may commence, and remain during life, which may not unfrequently, under the attentive guardianship of careful persons, be prolonged for a course of years, and only terminate with the natural period of human life.

When the maniacal delirium has long intervals, and extends only to one, or a few objects, the insane person commonly enjoys a great degree of rationality, and is frequently even uncommonly acute, relative to such subjects as have no connection with the object, or objects, of delirium, as was singularly exemplified in the elegant

and sublime TASSO[w] and in the learned and ingenious HARRINGTON[x]. In these cases, the brain being in an irritable, and susceptible state, and liable to be strongly affected by some certain ideas, and notions, dwells upon them, whenever they occur, with peculiar ardour and intenseness, which rapidly increases the oscillatory motions of the small arteries of the brain, and the activity of its vibrations; and by such intense attention, and accelerated action, the sensitive vibrations of imagination assume a degree of vivacity equal to those excited by the real presence of their object, and the mind is deluded into a belief of the actual, and external, existence of its own internal fancies, and reveries.

4. As *sensitive insanity*[y] much resembles the maniacal, and often borders very nearly upon the phrenitic; from the former of which it is chiefly distinguished by the relation of the delirium to the form, substance, or other sensible qualities, or contents, of the body of the insane person; and from the latter by the violence of the delirium; and the degree of inflammatory activity of the vessels of the brain; its causes must be similar to those of maniacal, and phrenitic insanity; and approach nearer to the one, or to the other, accordingly as its

[w] See above, vol. i. p. 81, and 119.

[x] See above, vol. i. p. 115.

[y] See above, vol. i. p. 121.

symptoms may happen most to resemble those of the one, or the other; and may vary, in other respects, in the same manner as I have above supposed the causes of those species of insanity to vary.

The symptom of sensitive delusion may partly originate from the usual causes of hypochondriacal feelings, and nervous debility, existing out of the brain; which most commonly arise from exhaustion, or from a disordered state of the alimentary canal; and partly from the great, and inordinate, affection of the brain; which may not only give occasion to intense delirium, and to sensitive misapprehension, from the mere force of a deluded imagination; but may so disturb the ordinary, and natural functions of the brain, and so disorder the nerves in consequense of such disturbance, as to give rise to preternatural, and delusive sensations; and thus, in both ways, may give occasion to insanity.

5. *Delusive insanity**, the first species of notional, being always a near approach to some species of ideal insanity, must, in all cases, be accompanied by a considerable degree of compression, compactness, or firmness, of the brain, and, in many, with no inconsiderable activity of its small arteries. But as its intenseness is exceed-

* See above, vol. i. p. 125.

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ingly various, and it is often, at intervals, which are sometimes pretty long, so diminished, as scarcely to afford any remaining traces of insanity, the degree of compression, and compactness, must be proportionably various in the same individual, and possess, in different persons, the differences of a very extensive scale: and the activity of the small arteries of the brain, both in the same, and in different individuals, must sometimes rise very high, at others be extremely low, and not unfrequently cease altogether.

As it may arise out of every other species of notional insanity, or be only the relics of some species of ideal; and is often no other than an incipient state, or the mere termination of phrenitic insanity: so it may originate from any of the four proximate causes, though it can seldom arise to any great height without being indebted to some degree of the first.

When it derives its existence from the first proximate cause only, which may be the sole cause of either variety, it not only nearly borders upon ideal, but is often upon the very confines of the phrenitic state. But if, in this case, it be attacked with vigour: and originate from no very obstinate, and formidable, remote cause; it may, for the most part, be speedily subdued, before the brain receives any material injury; and may afford a fair prospect of a permanent cure.

The second proximate cause is more obstinate, but

but will commonly yield to the preservering efforts of medical skill. It is capable of giving occasion to either the first or the second variety of delusive insanity, and to every degree of them, as the circumstances of compression, and irritation of the arterous activity, and the concomitant intenseness of delirium, and the nature of the remote cause, may happen to vary; but never can approach to a phrenitic state, till the compression is become very considerable, the delirium intense, and a great degree of action has been by these means excited in the small arteries of the brain.

The third proximate cause may, by similar degrees of compression, and irritation, and other corresponding circumstances, produce similar effects: but affords a less favourable prospect of a happy termination: is often accompanied with paralytic symptoms; frequently reduces the hopeless sufferer in a short time to a state of idiotism; and though sometimes slow, is more frequently rapid, in its progress; and rarely admits of a long state of suffering; or makes a lasting spectacle of human degradation, and infirmity, by a protracted life of drivelling imbecillity.

The fourth cause, though less violent in its effects, less hostile to life, and rarely so totally subversive of sense and intelligence, as the third, is obstinate, and formidable, unless while recent, and affords but an indifferent prospect of a perfect restoration to soundness of mind. Sometimes,

times, when the change in the texture of the brain is very considerable, or the remote causes are such as excite much activity of mind, the intenseness of the delirium may so excite the activity of the small arteries, as to induce phrenitic insanity; which subsiding, often leaves the brain in a worse state of injured texture; and the insanity, at length, frequently terminates in perfect idiotism, or excessive, fixed, and incurable delusion.

What circumstances, and conditions, may determine delusive insanity to be of the first, or second, variety; or may favour the introduction of any of the species of ideal insanity; may easily be collected from what has just been observed concerning the proximate causes of those species.

6. *Whimsical insanity*[*] is occasioned by such a degree of compression, and firmness of the brain, as is adapted to render it too irritable; to excite, in a considerable degree, uncomfortable nervous feelings, a general gloom of mind, timidity and suspicion; to give frequent recurrency, and vigour to vibrations of some particular kinds; and thus incessantly, and intensely, to engage the attention of the mind to some particular objects; and by fixing and limiting its views, to give oc-

* See above, vol. i. p. 154.

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casion to a variety of unnatural, but strong, associations; and so to confound the judgment, as to give to the most false and absurd, the credit of the most just, and true. These effects are greatly promoted by a long series of habitual low spirits, by constitutional, or acquired, irritability of passion, fancifulness of imagination, and unsoundness of judgment. This species of insanity is often, therefore, the disorder of ingenious, and always, perhaps, of weak, timid, and little, minds.

When it is in the extreme, it often borders upon, or is connected with, fanciful insanity; but is more commonly related to the gloomy varieties of pathetic insanity, out of which it frequently proceeds; and it is sometimes pure, unmixed, and original. As it is, not unusually, so slight, as scarcely to distinguish the insane from the common ranks of mankind; so, on the other hand, as the compression, or compactness, and irritation, increase, as passion unites itself to the other causes, and the attention becomes fixed, and intense, it occasionally rises through all the intermediate degrees of notional, to the highest pitch of ideal, and phrenitic, insanity.

As the mind, under the influence of whimsical, is in a state of less activity, and excitement, than in fanciful insanity, so this species is less dependant on the first proximate cause; from a low degree of which, however, it seems sometimes

to

to originate; and to which it sometimes gives occasion; and then, especially, approaches to fanciful insanity, and sometimes passes on to maniacal, and even to phrenitic. But more frequently it seems to proceed from the second; not uncommonly from the fourth; and very rarely from the third.

7. In all the degrees of *fanciful insanity*[b] the tones, and vibrations, of the brain, are lively, and the mind is in too wakeful, and active, a state. There is that degree of irritability in the medullary fibres of the brain, and of the nervous power by which they are incited, and agitated, which renders them tremblingly alive to action, and eagerly susceptible of quick, and animated, vibrations; and which fits them for the excitement of vivid trains of ideas by the gentlest impulse of exciting causes; and disposes the vivid trains, thus excited, to follow, in rapid succession, by the slightest connexions, and the most remote associations.

Hence it is that the fancifully insane are talkative, quick, lively, acute, ingenious, witty, brilliant, and sometimes sublime.

In the lowest degree of this species of insanity, there is a certain activity of the arterial system of the brain, which does not exist but in an active

[b] See above, vol. i. p. 161.

state

state of the mind; and which is prone to become, by the continued action, and re-action of the mind, and brain, mutually upon each other, and the reciprocal excitement of each others exertions, insensibly more and more rapid; till, by degrees, the oscillations, and turgescency, of the vessels of the head, so increase, as to work up the mind, and brain, to a degree of activity and excitement, often little short of, and not uncommonly terminating in, actual ideal delirium: which does not usually stop here; but proceeding from one degree to another, passes, from the first advances beyond the line of fanciful, through every intermediate stage, to the utmost extreme of phrenitic insanity. And, as in its lower degree the disorder has rather the appearance of uncommon sense, and acuteness of parts, than of insanity; so in the highest, the excessive quickness of imagination, and rapidity of transition from one association to another, perfectly destroy the appearance of coherency, and assume the form, and character, of the most senseless, and idiotical raving.

It is obvious that this species of insanity is more immediately connected with the first proximate cause, and depends on such an active state of the small arteries of the brain, and such a degree of turgescency and compression, as are adapted to give liveliness, and vivacity, to the imagination, and to excite, in a rapid succession, incessant trains of ideas, which often succeed

each

each other by the slightest connexions.—It may proceed, however, more remotely, from any of the other proximate causes, whenever they happen to give occasion, as they not unfrequently do, to such a degree of excitement in the vibrations of the brain, and the oscillations of its capillary arteries, as are here described as necessary to the production of this species of insanity.

8. Of *impulsive insanity** I have distinguished four varieties, all of which are accompanied with some degree of increased activity of the small arteries, and of the nervous filaments, or of whatever it is that vibrates, excites ideas, and conveys impulses, in the medullary substance, of the brain: and this increased activity is greater or less; is exerted continually or at intervals; and is connected with high or low spirits; according to the nature, and intenseness, of the insanity.

The first variety often originates from dejection of spirits, or from some one of the various kinds of pathetic insanity; which, suddenly disappearing, are succeeded by unexpected cheerfulness, and an imaginary amendment; a change, however, which, in reality, only indicates an increase of the disorder of the brain, and a commencement of a more than ordinarily active state

* See above, vol. i. p. 163.

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of the oscillations of its small arteries, and of the vibrations of its medullary substance. At other times it comes on almost immediately, and with, apparently, little or no antecedent insanity; with scarcely any preceding dejection, or the obvious influence of any considerable passion: and is then usually the symptom of an incipient ideal insanity. In the latter case, it is generally owing to the first proximate cause alone. In the former, commonly to the second; sometimes, perhaps, to the third; and not very rarely to the fourth.

In the second variety there is great irritability of mind, and brain; derived from an habitual, and chronic, disorder of that organ; which owes its birth to injudicious education, and the early indulgence of froward inclinations, and perverse passions; to hypochondriacal, and other nervous complaints; to some sorts of pathetic insanity; to painful disorders of the head; and to whatever can occasion a chronic accumulation of fluids in the brain, and so distemper it, as to give rise to great nervous irritability, susceptibility of violent passion, strong and permanent resentment, obstinacy of temper, impatience of contradiction or restraint, and an irresistible propensity to pursue the impulses of the present moment. It is always accompanied with the first proximate cause, when considerable; but may originate from any of the other three; and especially from the second, and fourth. When violent, it frequently terminates

in some species of ideal insanity. This, and the first variety, are often the causes, and not uncommonly the consequences, of excessive drinking: and, in either case, they are in general easily cured; but exceedingly apt to return; till by repetition, and the baneful influence of intoxication, it is commonly rendered incurable, and usually terminates in some species of ideal insanity, or sinks into perfect idiotism.

The third variety frequently occurs in the female sex; is the offspring of great nervous irritability; is always immediately excited by the first cause; most commonly, I believe, originates from the second, and sometimes from the fourth. It yields, for the most part, readily to medicine; but is very apt to return. Though usually the disorder of the fair sex, it sometimes exists in the other; and is even an occasional symptom of maniacal, or phrenitic, insanity.

The fourth variety is a very near approach to phrenitic insanity; may succeed any of the other varieties, and may owe its existence to the same causes; but always immediately depends upon the first proximate cause; and sometimes, perhaps, upon that only: and is more or less easily curable, according to its permanency, the violence of its symptoms, its connexion with any other species of insanity, the nature of that insanity, and the nature of the causes from which it may have sprung.

9. *Scheming*

9. *Scheming insanity*[d], of which the varieties, so far as respects its object, are innumerable, may be distinguished, with a view to its origin, into two sorts.

Sometimes it takes its rise from intense application of mind to, and incessant and uniform brooding over, some one object; which has taken hold of the imagination, and gained the affection, as especially, if not solely, worthy of attention, and pursuit; or for the attainment of which the qualifications, and abilities, of the pursuer, are peculiarly, and happily, adapted.—Or it may grow out of some other species of insanity, and spring from the same causes from which they derived their existence.

In the former case it receives its beginning most commonly, from the second cause of insanity; but sometimes, perhaps, from the fourth; and owes its increase, animation, and impetuosity, to the first: and, in the latter case, from any of the causes from which they originated: but, especially from the second; to which, when it becomes violent, is added the first.

It is peculiarly subject to intermissions; either in the scheming only; on which occasion it deviates into self-important, impulsive, whimsical, fanciful, delusive, or into some variety of pathetic insanity; according to the nature, or com-

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[d] See above, vol. i. p. 170.

bination, of its causes; or of the insanity altogether. When the intermission is complete, I attribute it to the second only, or to the first, and second, causes united. When it is imperfect, and some degree of insanity, however different in its kind, for ever remains, I suspect such obstinacy of disorder to arise from the fourth.

It is a frequent prelude to maniacal and phrenitic insanity; to which it sometimes makes the most rapid advances.

10. *Vain*, or *self-important insanity*[e], usually proceeds from a considerable degree, and inveterate state of the fourth cause, and is incurable: and is then not only permanent, but pretty uniform; and has few deviations, rarely any great amendment, and no perfect intermissions. But there are cases in which it is less constant, and unyielding, and has longer or shorter, intermissions; though it is still liable to returns, which are, not uncommonly, pretty frequent, and seldom leaves the mind, in the intervals, in a perfectly sound, and rational, state. In these cases it may be owing *in part* to the fourth cause: but is probably more indebted to the second: which giving way, in time, to proper medical exertions, leaves the mind in a state which cannot justly be considered as sound; and yet so nearly approaches

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[e] See above, vol. i. p. 171.

to

to sanity, that it ought, rather, perhaps, to be termed unsteady, than insane. When this less obstinate, but commonly more violent, sort of self-important insanity, is at its height, it always associates, with the second and fourth cause, some portion, and often a very large one, of the first; and frequently terminates in some species of ideal, and often rises into a very high degree of phrenitic, insanity.

11. In *hypochondriacal insanity*[f],—(a) the alimentary canal, and the whole apparatus of the instruments of chylification, are, sometimes, the parts that first suffer; and the head is only affected in consequence of the disorder of these important organs. How complaints so remote from the head, tend to affect the brain, and to bring on insanity, has already been explained[g].—(b) Often, however, the head seems to be primarily affected: and it is always, I believe, very sensibly, and considerably, disordered, before the imagination, and understanding, are very observably injured. In these cases, the nervous, and other symptoms, affecting other, and distant, parts of the body, are only the consequences of the disordered state of the brain.—(c) In other cases, the head, and the rest of the body, seem

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[f] See above, vol. i. p. 174.

[g] See above, p. 146, 173, and 117 of this volume.

to suffer at the same time, and from the same common cause: as when the disorder proceeds from much and fatiguing dissipation, and late hours[h], from a studious and sedentary life[i], or from habitual excesses in eating[j], drinking[k], or venery[l]. In all cases, however, the nerves suffer much; and uncomfortable, and distressing, feelings, are a predominant symptom; and sometimes the flesh insensibly wastes, and the strength decays: and in most instances the skin is harsh and clammy; or harsh, dry, and withered; and not uncommonly separates in scales, or falls off in a scurfy powder.

(a) When the disease begins in the alimentary canal, and the organs of chylification, the insanity which follows is probably the immediate effect of the second cause; which will naturally be generated by the diminution of tones, and dejection of spirits, unavoidably resulting from the disordered state of the viscera; and the anxious, desponding, and unceasing attention of the mind, to the uncomfortable feelings thus excited in the body; and the consequent increased determination of blood to the brain; while its recurrence

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[h] See above, p. 165 of this volume.

[i] Ib. p. 163.

[j] Ib. p. 122.

[k] Ib. p. 125.

[l] Ib. p. 82, and 222.

through

through the veins, if not diminished, is not increased, with the increased action of the capillary arteries.

(b) When the head is primarily affected, as by intense thinking, habitual passions, or some other immediate cause of disorder in the brain; the insanity is probably, in like manner, the immediate effect of the second proximate cause, or an accumulation of blood in the veins, and sinuses; either alone; or united with the third; or with the fourth; or with both at the same time.

(c) When the head and body suffer together, and especially by excessive drinking, it is probable that all the four causes frequently unite their influence, in disordering the understanding. And when the insanity is accompanied by tremor, giddiness, unsteady walking, enlargement of the pupils, or a vacant, and staring appearance of the eyes, as it sometimes is, I suspect some degree of the third to be the principal cause concerned.

The disordered state of the nerves which they all produce; and the languor, depression of spirits, spasms, and various painful feelings, which flow from that source; and especially when aided by some accidental circumstance, which may be fitted to impose upon an infirm, prepos-

sessed, and dejected mind; easily lead to the peculiar fancies of the hypochondriacally insane.

How this species may degenerate into pathetic insanity, may easily be understood from what has before been said, in treating of the passions[m] as remote causes of insanity.

12. Of the proximate causes of *pathetic insanity*[n] I shall only speak in general; without attempting to point out their several variations, and combinations, corresponding to the several differences of its numerous varieties: or to describe the manner in which the remote causes give occasion to them: which, indeed, has been already done, in some measure, in treating of the passions concerned in the production of insanity[o].

This species may originate—(a) from peculiarity of temper, and disposition, of mind, or from the habitual indulgence of some particular, and especially of some painful, passion; as malevolence, discontent, anxiety, fretfulness, peevishness, avarice, and other dispositions, and passions, of a like nature;—(b) from the accidental excitement of some violent passion, as fear, terror, grief, or the like:—(c) from some bodily

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[m] See above, p. 187 of this volume.

[n] See above, vol. i. p. 185.

[o] See above, p. 187 of this volume.

disorder

disorder affecting the brain; as the suppression of the menses, or milk, the repulsion of the gout, or of cutaneous eruptions, the drying up of old ulcers, or fevers of various kinds; and producing an insanity characterised by some particular passion:—or (d) from some other species of insanity.

(a) As the varieties of pathetic insanity are almost all accompanied with distress, dejection, anxiety, pain, agitation, or restlessness of mind; and are apt to terminate in the deepest melancholy; and, in the impetuosity of impatience, or the agony of desperation, to plunge the unhappy sufferer into the horror, and guilt, of suicide; it is obvious that the temper and disposition of mind, or the passion habitually indulged, from which they originate, must usually be of the anxious, peevish, or gloomy kind. How such a temper, and such passions, may introduce insanity has already been shown, in treating of the passions. And as they all act in part, by exciting a determination of blood to the head, it is probable that they occasion an accumulation of it in the veins, and sinuses, of the brain; and produce insanity by the second proximate cause.

(b) Pathetic insanity arising from the second remote cause, is, like the former, the offspring of the second proximate cause; but as it is usually more

more violent in its symptoms, and more rapid in its progress; and often makes hasty advances to the very extreme of phrenitic insanity; it is seldom long before it calls in the aid of the first.

(c) In like manner pathetic insanity from the third remote cause, while it is indebted to the second proximate cause for its origin, soon receives increase, and is often speedily exalted into phrenitic insanity, by the first: and when it derives its beginning from a fever, it is, probably, frequently aggravated by the third, or fourth, proximate causes; and in such cases is very often either incurable, or leaves behind it some other incurable disease. When owing to the second only, it is usually curable.

(d) Pathetic insanity from the fourth remote cause, may either succeed some species of notional, or of ideal, insanity. In the former case it is usually on the increase, and continues growing in violence till it rises to phrenitic insanity. In the latter case the ideal symptoms, which were at first, perhaps, violent, and even phrenitic, gradually decline, and at length disappear; and leave, in their stead, symptoms of pathetic insanity only. When it succeeds some other species of notional insanity, it probably acknowledges most frequently the second proximate cause; to which,

when

when it is violent, and on the increase, is added some degree of the first: and when it remains after ideal insanity, it is sometimes, perhaps, also connected with the third, or fourth; and is then, for the most part, either incurable, or leaves behind it other incurable diseases.

13. In treating of *appetitive insanity*[r], I shall pay no particular regard to the distinction into satyriasis, and nymphomania; the differences of which, depending upon the differences of sex, need no explanation: but shall remark two very striking, and essential, variations, which may be observed in this disorder, and are to be met with in either of the sexes. For appetitive insanity, whether in males or females, appears sometimes to arise from the state of the parts by which they are distinguished; and sometimes to grow out of some other species of insanity.—In the former case, it seems to spring sometimes from the disordered, or preternatural, state of those parts, without the previous stimulation of mental turpitude; and sometimes from the depraved indulgence of lascivious ideas. And, under both circumstances, the insanity is induced in consequence of the perpetual employment of the mind about

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[r] See above, vol. i. p. 241.—See also p 139—143 of this volume.

the

the objects of irregular desire[1]; is, therefore, to be attributed to the first proximate cause; and usually makes hasty advances to a phrenitic state.—In the latter, the lascivious ideas, and disorderly propensities, seem to be merely, or chiefly, the result of the delirious state of the brain; and of course, the proximate cause will vary according to the nature of the insanity which gave occasion to the existence of such ideas, and propensities.

Having thus taken a review, imperfect indeed, and limited, but which I hope will be found to throw some practical light upon the subject of the several species of insanity; and having pointed out the apparent relations of each species to the four variations of the state of the brain which seem to approach the nearest to the proximate causes; I am naturally led to remark certain common, and regular, changes which occur in many cases of insanity, and which seem to admit of a ready explanation from what has been said above relative to this subject.

I have often observed, in certain cases of insanity in which the patient has experienced frequent returns of the complaint; and also in some others; that the first appearance of disorder has been no more than a change from natural even-

[1] See above, p. 141 of this volume.

ness,

ness, of spirits, or cheerfulness, to unusual dulness, silence, musing, and fondness of retirement and solitude; which have been succeeded, as the disorder increased, by great dejection, distress, and melancholy; when, at once, the unhappy sufferer has become cheerful, has seemed uncommonly sensible, and rational, and has appeared to be suddenly, and unexpectedly, getting well. Soon, however, this agreeable prospect has vanished; he has grown high spirited, fanciful, scheming; he has been hurried about by every impulse of a wayward imagination, or of unreasonable passion; and while, being freed from his distress of mind, he has fancied himself well, his anxious friends have lamented the increase of his disorder, and have been alarmed at the quick progress which, they have now become sensible, it was making to maniacal, and phrenitic, insanity. And, when at length this violence has given way, the patient has appeared first more calm, and rational; then dejected; and this state of dejection has frequently continued for a long time, gradually retiring, before he has been perfectly restored to his right mind.—The first, and melancholy state, seems to be owing to a beginning determination of blood to the brain, and a gradual accumulation in its veins, and sinuses. When this accumulation, and compression have by their irritation, begun to excite accelerated oscillations in the small arteries, and vivid vibrations in the

medullary

medullary substance, of the brain, the uneasy gloom now giving way to more lively ideas, the person seems, at first, to be getting well; till the increased action of the arteries, and undue excitement of the brain, induce the higher, and more violent, degrees of delirium. And when, these subsiding, the former states of the brain successively, but in an inverted order, recur; the same appearances return, till the disorder of the brain, entirely ceasing, leaves the patient again restored to his right mind.

Similar to this has been the succession of symptoms, which I have frequently observed, in certain cases of highly maniacal, and phrenitic, insanity, which were subject to irregular paroxysms, and remissions; were incurable; and were, apparently, attended with a combination of all the four conditions of the proximate cause.—In their best state they were mildly maniacal. On the approach of a paroxysm, they became exceedingly dull, and stupid: after a time they began to be more lively, and in some degree calm, and sensible: this apparent amendment was soon succeeded by violent phrenitic insanity; which subsiding, they became again more calm, and sensible; then, dull, and stupid; and in the end settled into the usual course of their ordinary, and mild, maniacal delirium.—The first dull, and stupid state, appeared to arise from a considerably increased compression of the brain; and was attended

attended with a remarkably slow pulse ; when the cheerfulness commenced, the velocity of the pulse began to quicken ; became rapid during the phrenitic delirium ; subsided as the delirium subsided ; till, on the return of the stupidity, it became once more exceedingly slow ; and when the insanity was at last settled in its common maniacal state, rose again to its ordinary standard.

These remarks are founded upon repeated experience, and accurate observation ; and appear to me, to throw great light upon the proximate causes of insanity.

SECTION

SECTION VI.

OF THE PREVENTION OF INSANITY.

In treating of the prevention of insanity, notwithstanding the great importance of the subject, I shall endeavour, as much as possible, to avoid minuteness; partly, that the size of the present volume may be confined within reasonable limits; and partly, because a due attention to what has before been said, concerning the several causes of insanity, will lead to a proper knowledge of the principal dangers to be avoided, and observances to be practised, in order to its prevention.

To defend ourselves, as much as may be, from the attacks of an enemy, so hostile to our comfort, and so subversive of the dignity of the human character; it is fit that every man should be rationally, and diligently, but not anxiously, attentive, to the strict observance of whatever may tend to preserve, or regain, the health, and to contribute to the perfection of his whole nature, bodily and mental. This opens to our prospect a large field of speculation, and practice. I shall confine myself to the following views.

1. Tempe-

1. Temperance in food, drink, sleep, and the indulgence of the venereal appetite.

2. Exercise.

3. The due regulation of the passions.

4. Attention to the operations of the imagination; and care to check its propensity to too great activity.

5. An assiduous diligence in the improvement of the reasoning faculties of the mind; and a watchful avoidance of the various causes of its imbecillity.

6. The careful avoidance of too long continued, too intense, and too uniform, thinking; and of excessive watching.

7. The avoidance of the other occasional causes of insanity; so far as they may, by our care and diligence, be avoided.

8. Rational views of God and religion; free from superstition, enthusiasm, or despondency; and a conscientious, and cheerful, performance, of the duties which religion prescribes.

1. The best rule of temperance in food is, that it be taken in such quantity, as to leave little or no. fulness, after eating; as that the body shall feel refreshed, and not oppressed, and the mind lively, and cheerful, and fit for the performance of all its operations, if requisite, with ease and alacrity; that dinner be the principal meal; and that supper either be taken very early, or be very light.

With regard to drink, temperance is necessary in small liquors, as well as in strong. For though the former cannot injure by inebriation; they are capable, when used immoderately, or injudiciously, to do much mischief by their quantity, and by their other sensible qualities. Small cold liquors should never be drunk, but with the greatest caution, when we are warm with exercise; and not at all when we are very hot; and large draughts should always be avoided. If drunk by persons who are very hot, they frequently bring on inflammatory, and other violent diseases; which, often, either end in death, or leave behind them complaints which remain for life: and may prepare the way for insanity, as well more immediately by giving occasion to the delirium of a fever, or by otherwise violently disordering the brain; as more remotely, by such permanent injuries of the brain, of other kinds, as may proceed from the violence of these original disorders.

How

How warm diluting liquors[r] may lay the foundation of insanity; and how wine[s], and other fermented, or spirituous, liquors, may produce the same effect; has already been explained in treating of the remote causes.

Warm diluting liquors should never be drunk in large quantities; unless with some particular views, and under such particular circumstances as may render copious dilution with small warm fluids, proper in the cure of a disease: and should never be drunk warmer than new milk, or the human blood while yet flowing in the course of circulation.

Wine should either be avoided altogether; or when that is not very practicable, or not very prudent, should always be taken in such moderation, as not to produce intoxication; nor flushing in the face; nor drowsiness; nor great spirits on the one hand; nor dulness, and depression on the other. Two or three glasses, twice a day, should rarely be exceeded, even by such as have not the smallest reason to be apprehensive of insanity; and one glass will in most cases, where no great exercise is made use of, be quite sufficient. But I would advise such as have any particular reason for guarding against insanity; unless in cases of debility, in which a small quantity of wine is

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[r] See above, p. 121 of this volume.

[s] See above, p. 125 of this volume.

found useful as a medicine; to abstain from vinous, and spirituous liquors, entirely: or at most to drink nothing stronger than small beer.

Temperance with regard to sleep, will be best regulated by the age, constitution, and experience, of individuals. In general, I believe, sleep is too much indulged; and that there is little need for caution against unreasonable abstinence from so necessary a refreshment; which, were it common, would demand attention, as perhaps the more dangerous extreme of the two. How a defect of sleep may be favourable to insanity, has been explained before[1]. And that its excess should have a tendency to promote the production of it, may easily be deduced, as well from the effects, as from what has above been said of the causes, of sleep[2]: an excessive indulgence in which, while it tends to induce an habitual distention of the veins, and sinuses, and perpetual compression, of the brain; at the same time encourages the generation of blood, promotes a general plenitude, and grossness of habit, and debilitates all the tones; and is, in both ways, injurious to health; and may lay the foundation of future insanity.

Persons in health, should rarely indulge in sleep during the day; should go to bed early in the

[1] See above, p. 171, and 185 of this volume.

[2] See above, p. 171 of this volume.

evening,

evening, and rise early in the morning; should allow themselves so much sleep, during the night, as they shall find, by experience, to be most conducive to bodily vigour, and mental alacrity; but should carefully guard against such indulgence, as shall give occasion to habitual languor, listlessness, weariness, torpidity, and drowsiness; and shall thus, obviously, injure the health of the body, and impair the faculties of the mind.—Whoever allows himself about eight hours refreshment in bed, out of twenty-four, will be in no great danger of insanity from an injurious abridgment of the hours of repose; and will usually be found, I am persuaded, equally distant from the opposite error, of giving too much time to the indulgence of sleep.

For the temperate regulation of the venereal appetite; the dangerous tendency of an undue indulgence of which I have more than once had occasion to mention*; I shall lay down no other rule, than that it be restrained within the bounds of what is allowed, by the sanction both of GOD, and man; and that it be used with so much moderation, as not to debilitate, but to animate, and strengthen, both the body, and mind.

2. Of the effects of exercise, in its various degrees, upon the body; of the necessary portions of it,

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* See above, p. 82, and 139 of this volume.

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and the latitude which may be allowed in its use, in different ages, sexes, and constitutions; and of the tendency of inactivity to promote the production of insanity; I have treated pretty largely, under the head of remote causes*. I need scarcely, therefore, observe here, that when there is nothing in the state of health to forbid it, it should not only be used daily, but should be frequently repeated every day: that seldom many hours should pass without riding, or walking, or making use of some sort of bodily motion, either within doors, or in the open air, accordingly as the health, weather, or other circumstances, may permit, or require: that it may sometimes be brisk, vigorous, and continued for a considerable time; but should never be violent, nor persevered in to any great degree of fatigue; and should generally be moderate both in degree and duration: that however, with regard to its kind, degree, frequency, and protraction, every prudent man's own taste, judgment, and experience, will be his best guides.

3. The regulation of the passions is a very important object; and is as difficult as it is important. What has been said above of their causes, and of their agency in the production of insanity*, at

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* See above, p. 87—102, of this volume.

* See above, p. 167—263, of this volume.

the

the same time that it points out their nature, and danger, will not only show the necessity, but will be a guide to some of the means, of directing their aim, and of combating their violence.

The chief means of combating the passions, and of keeping them within just bounds, are, so to form our estimate of the things of this life; and of the relation of our state here to a future state of existence after death; and of the influence which our conduct here, in which the good or bad management of our passions will have a principal share, will have upon our happiness, both here, and hereafter; as to be under the smallest possible temptation to be much agitated, or any way unduly influenced, by any of our passions: which, when suffered, in consequence of an erroneous, and irrational estimate, of the value, and relation, of the things of this life, and another, to become violent, or unjust, are capable of inducing insanity, not only by their immediate effect upon the brain, but by the self-condemnation, and remorse, with which they are not unfrequently followed. Such a right estimate every rational man will labour to attain. He will endeavour, by correcting error, and acquiring such habits as are consistent with just sentiments, to withdraw the nourishment from the very root of passion, rather than be forever fruitlessly occupied in merely pruning the luxuriance of some of its branches. But as there are many to be guarded

against the inroads of insanity, who have but a small portion of religion, and less of philosophy; and who will scarcely be at much pains to acquire a larger of either; it may be proper to teach such how to moderate the passions which they cannot subdue; that, while they are in some degree figuratively, and morally insane, they may not become so actually, and medically.

It may be useful for such persons to impress strongly upon their minds the persuasion, that the indulgence of any passion to excess, and especially of the selfish, and malevolent, is likely to be injurious to health; will certainly be destructive of serenity, and comfort; and, of course, by diminishing happiness, will frustrate its own aim, and intention: and may, by repetition, acquire accumulated force, and facility of excitement: and become, at length, unconquerable, and habitual, and according to its nature, violence, and frequency, will, in a greater or less degree, be subversive of happiness, and leave us, more or less, open to the attacks of insanity.

Such persons will, therefore, see it highly expedient while under the influence of these impressions, to do all in their power to avoid the occasions of passion; to compare the urgency, and apparent importance of them, when they occur, with the probable diminution of the comfort, and health, of body, and mind, which the passion they would urge us to might induce; and to

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lay it down as a rule, never to indulge any passion whatever, till, independently of moral considerations, and the notions of duty, and obligation, they have deliberately reflected, whether the importance of the cause, will be a sufficient counterbalance to the certain pain, of the passion, and the injury which may be thence derived to their health of body, and ease, and soundness, of mind. A habit of such deliberation, once acquired; and it may be acquired, by diligence, and resolution; will entirely put an end to exorbitant passions; since by checking the very beginnings of emotion, its growth, and progress, will be altogether prevented.

And as every one has some weak part, on which he is more open to a successful attack; some constitutional, or habitual, passion, whose approaches he cannot easily withstand; all persons who are convinced of the expediency, and necessity, of subduing their passions, if they would consult their own ease, will be aware of the importance of keeping a diligent watch, and placing a strong guard, upon the passion that most easily, and successfully, besets them.

And whoever would secure a reasonable portion of present happiness, will be sensible of the necessity of learning the art of contentment; which, difficult as it may seem to those who have not used themselves to check the wanderings of imagination, and to keep their desires within prudent bounds,

bounds, not only appears indispensable, but easy, to the man who feels a lively, and practical, conviction, of its wonderful tendency to multiply the sum of actual enjoyment.

With the same view of promoting, and securing, their own present felicity, such persons will see the propriety of acquiring habits of good nature; and of cultivating the emotions of benevolence. And, as virtue seldom fails to bring with her, her own dowry, contentedness, and benevolence, will infallibly introduce habits of cheerfulness; which, while they improve our happiness, are a powerful preservative against disease, and the determined enemies of insanity.

4. That the wanderings of imagination may be prevented, and its too great ardor, and activity, controlled, the most exact and unwearied attention should be paid to its operations: and the man who is conscious of its propensity to ramble, or to become too active, should ever be upon the watch, to check its first deviations, and to recall its activity, to sobriety, and steadiness; to fix it to one, and to a single, and unvarying, view of one, subject; to habituate it to examine relations with accurate observation: and to distinguish between distant similitudes, and exact resemblances. It should rarely, therefore, be suffered to move with impatient, or unthinking levity, from one object to another; but should

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be taught, with great care, and pains, to fix its attention on whatever comes in review before it; so that it may not only receive a proper impression from it; but may keep it long enough in view for the due consideration of its various properties, and the accurate investigation of its several relations. Writers on subjects of imagination, or who misuse imagination on subjects of reasoning, and investigation, should be carefully avoided, as too favourable to the growth of the natural propensity; or should be read but little, and with much caution; and their dangerous influence should be counteracted, by the diligent perusal of a few select books of sound and philosophical criticism.—Emotions of passion, as prone to excite the undue activity, and to encourage the erroneous operations, of imagination, should rarely be indulged, and never to excess; and that uniform activity of imagination should be instantly suppressed, which discovers itself in the frequent, forcible, and unbidden intrusion, and recurrency, of the same fancy; and which, like its similar activity when the mind is under the influence of any strong passion, displays an inability to control it, or a very blamable inattention to its due government.

In short, the imagination should so be subdued, and kept under, that the mind may be able to attend to reality, and the nature of things, and not suffer itself to be seduced by fancy; may learn to

reason

reason from objects themselves, and not from words, which too often are no more than sounds without a meaning; and may not be directed in its opinions by mere names, and authorities, without due and satisfactory, examination.—This leads me to the consideration of the next method of avoiding insanity; which is—

5. An assiduous diligence in the improvement of the reasoning faculties of the mind; and a watchful avoidance of the various causes of its imbecillity.

He who has learned to govern his passions, to restrain the precipitancy of imagination, and to fix, or withdraw, his attention, as may be most expedient, has laid a good foundation whereon to erect that firmness of mind, and soundness of judgment, which are the very reverse of imbecillity; by which, as I have before said, I understand that debilitated state of the reasoning faculties, which renders the mind incapable of withdrawing its attention from any train of thinking in which it is engaged; disposes it to be carried away by the impulse of passion, or to be deluded by the hasty and superficial combinations of imagination; and is subversive of self-command, rational conduct, and sound judgment.

This imbecillity has often its foundation in nature; but may be much increased, or diminished, by education, and habit; which, while they

they are capable of strengthening a weak mind, are able to debase the strongest original faculties, and the best natural endowments.

To the rules, therefore, just laid down, relative to the government of the passions, and the conduct of the imagination; the observance of which is of great efficacy in invigorating the powers of the mind; I shall here add a few others of a similar nature, and tendency, and no way inferior in importance.

I would advise all persons who wish to improve their reasoning faculties, and to avoid the causes of imbecillity of mind; besides observing strictly the above-mentioned rules;—to use themselves to deliberate, on whatever comes under their consideration, with great care, and diligence; to be at much pains to form clear conceptions of things; to bring their various relations, and connexions, before the mind, as much as may be at one view, and to examine, and compare them, with the greatest exactness; to be more careful to separate, and distinguish, than solicitous to bring together, and combine, ideas, and notions; to combine them only after the severest, and most discriminating examination: anxiously to avoid all slight, and superficial thinking; never to be contented with a mere smattering; to draw no conclusion which they are not persuaded, after the most serious reflection, and the most scrupu-

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lous examination, that they may justly draw; and never to draw fixed conclusions, relative to any subject whatever, till it has passed in complete review before the mind, and has undergone the severest test of the most accurate scrutiny; and, after all, though rationally firm, and steady, to be ever prepared for farther information, and ever open to conviction; and though careful to withhold assent, till the force of evidence is complete, yet ready to yield it up to the superior strength of reason, and truth; to avoid prejudices of all sorts; to dislike none for difference of conduct, party, or opinion; to guard against credulity, and superstition; in a word, to cultivate benevolence, candour, a love of truth, and a love of virtue; but above all, to pay a particular attention to moral truth; and to spare no pains to acquire the most enlarged, and exalted notions, of the suitableness to our nature, of the importance, rectitude, truth, goodness, beauty, and happiness, of virtue, and religion. That these valuable purposes may be attained, I would recommend it to all such as have leisure, and ability, that they should especially endeavour to acquire a habit of close thinking, and exact reasoning, by cultivating a taste for mathematical studies; by confining their reading on subjects of philosophy, morals, or divinity, to the writings of such authors as are eminent for strict investigation, and sound reasoning;

soning; and by making themselves perfectly masters of all their arguments relative to the subjects on which they treat.

Thus the passions being held in subjection, the vagaries of imagination restrained, and the powers of reason cultivated, and improved, a strong, and invincible, bulwark, will be raised against the inroads of insanity from mental causes; and especially—

6. If we be careful to avoid too long continued, too intense, and too uniform thinking; which I have shown to be exceedingly unfriendly to the preservation of mental sanity[y]; and the avoidance of which seems to require no other rule, than what every man's prudence, and feelings, will suggest, relative to the interruption, moderation, and variation of thinking; and if we be cautious not to indulge too much in late hours, and long protracted lucubrations; or, in any respect, give way to excessive watching[z]; which are apt to be accompanied with intense, and uniform thinking; as well as otherwise to disturb the functions of the brain; to disorder, and debilitate the faculties of the mind; and to facilitate the approaches of insanity.

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[y] See above, p. 161, and 185 of this volume.

[z] See above, p. 185 of this volume.

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7. There are other causes of insanity, all of the bodily kind, the particulars of which may be collected from the table, against some of which no foresight can entirely protect us; though the rules relative to the preservation of bodily health, the regulation of the passions, the government of the imagination, and the conduct of the mind, above laid down, will both render us less liable to their attacks; and free us from much of their danger: and the account given of them as remote causes, to which I refer the reader, will furnish many useful hints for the avoidance of such of them as are more immediately in our power. I shall, therefore, pass over the particular consideration of them here; and proceed to the last, and most important, method, to be employed, with a view to the promotion of mental serenity, and comfort, and to the prevention of these unhappy disorders, so far as they may originate from the mind; to which all the other rules relative to the conduct of the passions, the imagination, and the understanding, are preparatory, and instrumental; and that is—

8. To acquire rational views of God and religion; free from superstition, enthusiasm, or despondency: and to observe a conscientious, and cheerful, performance, of the duties which religion prescribes; equally distant from the moroseness of

of gloomy severity, and from the levity of unwarrantable relaxation.

Men would be more generally happy, they would have more true enjoyment of the blessings, and would be less sensibly affected with the misfortunes, of this life, had they right notions of GOD; of the nature, and means, of real happiness; and of its necessary connexion with religion, and their duty, with the love of GOD, the love of man[a], and a determined abstinence from all intemperate indulgences.

He who has right apprehensions of the benevolence of the Deity; of the beauty, of the suitableness to our nature, and, let me add, of the easy practicability to a well-disposed mind, of all that religion requires of us imperfect, but much favoured mortals; of the inward peace, and comfort, which the heart of man cannot fail to derive from the observance of its precepts; must ever be impressed with the most perfect gratitude, and affection, towards the Creator, the Father, and the

[a] As I do not think it proper here to enter minutely into these very interesting, and important, subjects; I shall satisfy myself with recommending to such of my readers as are disposed to enter seriously into the consideration of them, four excellent discourses of the late Bishop BUTLER, two on the Love of GOD, and two on the Love of our Neighbour, published in the collection of his sermons preached at the Rolls Chapel:—and also two equally excellent discourses lately published by Dr. PRIESTLEY; the first On Habitual Devotion, and the second On the Duty of not living to Ourselves; in which there are some very just reflections on the mental causes of insanity.

the Friend of man, who has given him being, who preserves, and protects him, in whom he every instant lives, and moves, and exists, who has furnished him with the means of happiness, and will secure to him the enjoyment of it; and must experience so heartfelt a conviction that the knowledge, the ability, and the actual performance, of right conduct; that the study, and the observance, of the rules of religion, and virtue; are his best privileges, and his greatest happiness, and tend to the melioration, and perfection, of his nature; as to conceive of God, as of a being from whom he has every thing good to hope, and nothing evil to fear; for perfect love casteth out fear; and to consider the practice of religion as an easy, and delightful service, not to be performed with reluctancy as a task, but with cheerfulness, and alacrity, as a source of the most exalted pleasure.

This seems to be the language of cultivated, and enlightened, reason, relative to God, and our duty; and it is, surely, the language of the Holy Scriptures; which tell us, in express terms, that God is our creator, our father, and our friend,—that we are the children, the sons, of God,—that he giveth us all things richly to enjoy,—that every good and perfect gift is from above, and cometh down from the Father of Light,—that he openeth his hand, and satisfieth the desire of every living thing,—that he exerciseth loving kindness,—that he is good to all, and his tender

tender mercies are over all his works,—that the earth is full of his goodness,—that he is the God of love, and peace, the father of all mercies, comfort, consolation, and goodness,—and that his peace passeth all understanding:—in short, benevolence is so eminent a part of the character of the great Father, and Benefactor, of mankind, that the Scriptures tell us that God *is love.*

And with regard to the practice of religion, and its suitableness to our nature, revelation assures us that the law is written in our hearts, and we are a law unto ourselves,—that his commandments, therefore, are not grievous,—and that his yoke is easy, and his burden is light:—that is, that he does not require difficult services, or unmeaning observances; such as are repugnant to our nature, have no rational aim, and no tendency to promote our own good, or that of others; that all which is expected from us is only true, and sincere repentance, and the pure services of an upright heart, and honest intentions; —and that, the duties of religion being so congenial to our nature, so consonant to our reason, so suitable to our feelings, so improving to the human heart, and understanding, and so every way conducive to happiness, as well in the immediate practice, as in the promised reward, having the promise of this life, and of that which is to come,—her ways cannot but be ways of pleasantness, and all her paths must infallibly lead to the habitations of peace.

 And

And for the encouragement of such as have not been sufficiently attentive to the voice of nature, and the exhortations of revealed religion; and have in any degree transgressed the bounds of duty to GOD, to themselves, or to their neighbours; we are told that our benevolent Father is a GOD ready to pardon, merciful and gracious, slow to anger, and of great kindness,—who pardoneth iniquity, and passeth by transgression,—who retaineth not his anger forever,—because he delighteth in mercy,—who is long-suffering to us-ward, not willing that any should perish, but that all should come to repentance,—who will not cast off forever,—and who doth not afflict willingly, nor grieve the children of men,—for he knows our condition, and remembers that we are but dust.

But if GOD be so good and merciful, and so ready to forgive; if he be a GOD of perfect beneficence; if he made us for happiness, and has provided the means of obtaining it; if, when we had no existence, he brought us into being, for the sole diffusion, and multiplication, of felicity,—and indeed, we can conceive no other motive for our creation;—surely it is out of the power of man to frustrate, by his folly, the benevolent intentions of the Deity, who hath, probably, allowed him to stray from the paths of wisdom and happiness, but to convince him that there are no other; and who hath suffered him to wander, that, taught by his experience, he may ultimately, return

turn into the right way, and learn to wander no more. If he sent his Son into the world, as the Gospel assures us, that all through him might be saved,—surely none shall be finally lost! Or, is his hand shortened, that he cannot save? shall any of the works of his power, and goodness, perish? shall the creatures, which he made to be happy, be permitted to be finally wretched? be suffered to make themselves irrecoverably miserable? Shall not the workmanship of God be complete? Though made liable to err, shall it not contain, within itself, that which shall, in the end, correct its errors? In a word, can the Almighty want power? can the allwise want wisdom? can the maker of the world do wrong? can he make man fallible, and leave him to transgress, and to be miserable?

And if God be a wise, and benevolent, being, if his service be an easy, and a reasonable, service, he cannot be the author of superstition; he cannot approve of a ceremonious devotion, in which the heart is but little concerned; he cannot impute merit to the scrupulous, and laborious, performance of unprofitable, and superstitious practices. He that hath said, that on these two commandments,—to love God with the whole heart, and to love our neighbours as ourselves,—hang all the law and the prophets;—and that the love of our neighbour is the fulfilling of the law;—he cannot give a sanction to ceremonies which have no relation to the love of God, or the love of

man;

man; he cannot mean to attribute merit even to faith, but so far as it tends to enlarge, and ennoble, our minds, by right notions of the power, and wisdom, and purity, and an unshaken trust in the benevolence, of his nature; to inspire us with the love of our Creator, and of our fellow creatures; and a desire, with the blessing of God to attain, by the performance of his will, and an imitation of the divine nature—humble indeed, and at an awful and infinite distance, and without presumption, and so far only as human nature may be permitted, and enabled, to imitate the divine,—to attain, as much as may be, to the perfection of our own.

But whatever may be our attainments, it is our duty, and our interest; for duty and interest always go hand in hand; still to be humble, and unpresuming. Shall he be proud who has nothing which he ought to call his own? Even had we more cause to take to ourselves merit, than any of us can pretend to; pride is too selfish an emotion to be indulged with conscious approbation; and too little productive of rational pleasure, and substantial happiness, to be purchased at the expence of the best feelings of the human heart, and of the noblest exercise of Christian duty, the feelings and exercise of active, and diffusive, benevolence. Pride is a comparative emotion; and a malevolent one; it is raised on the debasement of others; and levies self-applause—if it can—at the expence of general good-will, and affection. It is, indeed, unworthy of our nature; it makes us stoop from our real dignity; and is a proof

a proof of our deficiency both in virtue and happiness, while it would arrogate a plenitude of both. Every rational, and sincere Christian, will, therefore, see it to be his duty, and his interest, as he will feel it to be his inclination, to guard against the emotions of spiritual pride; and that sort of enthusiasm, which is grounded upon the notions of extraordinary excellency, and the peculiar approbation, and friendship of God; as proceeding from irrational views of God and religion, as unsuitable to human infirmity, as inconsistent with human duty, as tending to diminish human felicity, as partaking of the nature of insanity, as calculated to promote the introduction of greater degrees of it, and as paving the way to the opposite disposition of mind, and leading to the other extreme of religious despondency. Every rational and judicious Christian, will see it to be his interest, to do his duty, without vain pride, or unmanly humility, and debasement: persuaded, on the one hand, that as pride is inconsistent with his duty, and interest, so likewise, that there is no merit in his best performances, and that after he has done all, he is, with regard to the Deity, an unprofitable servant: and persuaded, on the other hand, that he ought never to give way to desperation; that his imperfect, and sincere services, will be rewarded with happiness, possibly in this world, and certainly in the next; and, however conscious of guilt, also persuaded that his very fears will be accepted of as repentance; that our benevo-

benevolent Creator will never desert the workmanship of his hands, or give up to perdition the beings whom his goodness has brought into existence; that our Heavenly Father will never cast off the children of his affection; and that our gracious friend will never forsake the friends whom he has chosen, who look up to him for protection, and whom none can doubt that he is able to save to the uttermost.

With such notions, and such prospects, the sincere Christian will conscientiously, and cheerfully, perform the duties of his station, and will go on his way rejoicing; he will exercise temperance, and do every thing else which may promote the health of his body; he will keep his passions in subjection; he will regulate the operations of imagination, check its activity, and restrain its wandering; he will diligently cultivate the powers of the mind, and guard against every cause of its imbecillity; he will avoid as much, as may be, too long continued, too intense, and too uniform, thinking; and unseasonable watching; and, to all this, adding, such rational views of God and religion, as will infallibly inspire the most reverent love of the Deity, and the most generous and disinterested benevolence toward man; he will have erected as strong a fortification against the assaults of insanity, both from bodily and mental causes, as it is in the power of human prudence to raise.

FINIS.

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